The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 9. MARCH 3, 1934. VOL. XIV.

General Articles

THE UGANDA VETERINARY SERVICE

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Introduction

The Uganda Protectorate is situated in East-Central Africa, some 800 miles from the east coast, and on the north west shores of Lake Victoria. It is bounded on the north and east by the Sudan and Kenya, and in the west and south by the Belgian Congo and Tanganyika Territory. The altitude varies round about 4,000-ft., but, of course, there are areas much higher and much lower.

As a stock country the Protectorate can boast of some 2,000,000 head of cattle besides numerous sheep, goats and fowls. Uganda is not considered a horse country, but recently a few horses have been introduced from Kenya and have done fairly well. There is an excellent system of all-weather roads throughout the country, and there are few parts inaccessible by car. It must be remembered, however, that a veterinary officer's work, at times, takes him away from the roads, but the days of walking safaris, except in very few districts, have disappeared. A car is really essential for a veterinary officer's work.

Organisation

The Veterinary Service is responsible to the Government through its Director of Animal Health and Animal Husbandry in Uganda. There are 15 professional officers, together with livestock officers, laboratory assistants, clerks and native staff.

The activities of the department are divided up into various sections, and it will facilitate description to take each one separately, although it must be understood that there are no water-tight compartments, and the whole is merged into the one service under the Director.

(*a*) ADMINISTRATIVE DIVISION

This consists of the Director and his clerical staff. The headquarters of the Department are in Kampala.

(*b*) DISEASE CONTROL DIVISION

Each important district in the Protectorate has its veterinary officer who is responsible to the Director for the animal health and animal industry in his area, a duty which entails close co-operation with the Administration, Medical and Agricultural Departments. The subjects, "Animal Health" and "Animal Industry" in Uganda will be elaborated under separate headings.

(*c*) LIVE STOCK DIVISION

There are four stock farms under the control of the Department, each under the supervision of an assistant livestock officer, whose function it is to demonstrate simple methods of animal husbandry, applicable to the primitive native stock owner. A certain amount of work has been done on grading up from pure-bred imported cattle, but efforts are concentrated on the more practical and useful method of improvement of native stock by artificial selection, using conformation, milk production, etc., as standards.

European poultry have been imported, and eggs and birds are distributed to Europeans and natives with the object of improving the native fowl. In addition to the usual activities associated with a stock farm, milk is supplied to hospitals and European residents in the stations near where the farms are situated. A fresh, uncontaminated milk supply in the tropics can only be appreciated by those who have had tropical experience, and especially those who have had young families to bring up in a tropical climate.

The culture of imported and indigenous grasses is also an important part of stock farm activities in Uganda.

A point in connection with departmental stock farms which is often overlooked, is that much more can be learned about the peculiarities and diseases of native stock by being a stock owner than by merely examining other people's animals.

(*d*) RESEARCH DIVISION

The Laboratory, which is, of course, the headquarters of the Research Division, is situated at Entebbe, which is 25 miles by road from Kampala. Entebbe is situated on the shores of Lake Victoria, and an excellent water supply and grazing facilities are available.

The Laboratory farm extends to approximately 1,600 acres, and some 400-500 head of cattle are kept for serum production, etc. Goats, sheep, donkeys and the usual small laboratory animals are also kept for experimental purposes. The Laboratory is well equipped, and

has electric power for both lighting and refrigeration.

There is a well-stocked library, and all the current scientific periodicals can be consulted. Routine work consists of examination and reports on specimens sent in from the field, the preparation of vaccines, etc. Research is mainly concentrated on trypanosomiasis in its various aspects, on the theileriases, and on various bacteriological and other problems as they arise. The preparation of rinderpest serum and vaccine, and research on this disease, is carried out in a separate block of buildings which were completed in 1932. Nearly 155,000 units (50 c.c.) of serum were produced during 1933.

(*e*) EDUCATIONAL SECTION

The Veterinary School is centred at the Laboratory, and the students are divided into two main classes:—

(1) *Intermediate.*—This consists of boys with a good secondary school education and with a fair knowledge of English. They do one year's course, and are taught to use a microscope and carry out all the common diagnostic methods. In addition, they are taught the etiology, diagnosis and treatment of the common diseases of stock in this part of Africa, along with practical work.

(2) *Makerere Students.*—These boys do a comprehensive course of five years. The first two of these are spent at Makerere College in company with medical and agricultural students. They then, if they reach the appropriate standard, enter the Veterinary School, where they spend three years. There is an excellent hostel, and class rooms, and there is every facility for acquiring a good knowledge of their work. In addition to lectures, there is practical and clinical work, and the fourth and fifth year students attend *post-mortem* examinations and assist in the routine work of the laboratory. On qualification, they assume the duties of an African Veterinary Assistant, and are admitted on probation to the African Civil Service.

A word here on the native staff might be appropriate. This consists of 25 native veterinary scouts, who have an elementary knowledge of the commoner diseases of the country, but are chiefly concerned with veterinary police work. The next group is that of the junior African veterinary assistants, who were mentioned above, under the heading of intermediate students. These boys assist veterinary officers, carry out inoculations, and do primary investigations into reported outbreaks of disease. Finally, there are senior African veterinary assistants, who assist veterinary officers in their districts, or perhaps take charge of a subdistrict under a veterinary officer. Others are stationed at the Laboratory in Entebbe. As time goes on, the higher-trained boys will gradually replace the intermediate type. It will be realised that the native staff is a most important unit of the Veterinary Service. A good native staff can, and does, make all the difference to a professional officer's duties in this part of Africa, and in Uganda they deserve the highest praise for their work, which is often performed under very trying conditions.

Animal Health

Africa is a country of plagues and scourges and the animal population of Uganda gets its fair share. From the economic standpoint, rinderpest is by far the most important disease. It is not enzoötic in Uganda, and on two occasions during the past ten years has been eradicated completely. The adjoining territories, especially in the north and east, have the misfortune to harbour the disease in an enzoötic form, so it will be readily understood how easily it can be introduced over often purely geographical boundaries, which not infrequently run through the middle of a tribal area. The majority of natives consider cattle as in the nature of a deposit account from which they draw as occasions arise. The commonest cause for withdrawal from this account is for the purpose of marriage within the tribe, and the fact that a particular tribe exists under two, and possibly three, different Administrations does not deter them from their natural matrimonial propensities, which invariably means the movement of cattle and often the spread of disease. Even under the closest surveillance, rinderpest is spread, not by human agencies, but through the medium of susceptible game, of which the buffalo is perhaps the most important. The disease is controlled in Uganda by quarantine, active immunisation by the serum-virus method, and by vaccination.

The successful control of rinderpest calls for a detailed knowledge of the country, a feeling of confidence by the native stock owners, close co-operation with the Administration, combined with constant and accurate observations, and hard work. However, in spite of the reputation which rinderpest has—and it kills anything from 70 per cent. to 100 per cent. of infected animals—the cattle population of Uganda has increased three-fold in the last twelve years. Apart from the direct loss of animals as a result of a rinderpest epizoötic, the disorganisation of the economic life of the tribes involved is a matter of very considerable moment.

Pleuro-pneumonia up till seven years ago was a major problem in Uganda, but since then it has been completely eradicated. However, constant watch is kept, especially in the north-east. Trypanosomiasis is, like the poor, always with us. The various tsetse-belts are well known, but the majority of the cases occur in

herds many miles away from tsetse-fly. Premunised animals appear to act as reservoirs, and the common biting flies, such as Stomoxys and Tabanidæ, act as transmitters. The most important trypanosome is *T. congolense*, and treatment with antimony, in many cases on a large scale, has proved very successful. Various other therapeutic agents for the treatment of trypanosomiasis in cattle and other animals are under trial at the Laboratory.

Under this heading must be mentioned an important departmental activity in connection with the eradication of *G. morsitans* in the field. Large scale clearing experiments have been, and are being, carried out. The utility of tsetse traps has also received attention. Special smoke houses have been erected, and clearings carried out on roads traversing *G. morsitans* belts. These smoke houses are for the purpose of fumigating traffic coming out of a fly belt, and the Director of Veterinary Services is empowered by law to compel such fumigation. Once the major epizoötic diseases are brought under control the opportunity is taken to investigate less spectacular diseases which, although they do not occur in epizoötic form, cause in the aggregate big losses. A disease which has assumed some prominence during recent years is tuberculosis. It is not the type of disease one would expect in native cattle which are not housed, but nevertheless it exists, especially in the Ankole cattle, to quite an alarming extent. Pastoral tribes depend on their cattle for their very existence, and their staple diet is blood and milk. It is thus quite unnecessary to emphasise the importance of such a disease as tuberculosis under these circumstances. As mentioned before, the Veterinary Department is responsible for the inspection of meat, and as this service developed, more evidence of the incidence of tubercle was obtained, which led to investigations at the source from which the cattle were drawn. This demonstrates the usefulness of the combination of animal health and meat inspection. East Coast fever and the theileriases are enzoötic, and indigenous calves pass through a disease known locally as amakebe, which includes these diseases, and probably anaplasmosis and red-water as well.

Anthrax and blackquarter exist throughout the country, and except for occasional local conflagrations, and outbreaks which threaten the meat or milk supply of a township, they cannot at the present time be considered as major problems.

Stock Industry

In a country such as Uganda, veterinary work, from the very inception of disease control, must be considered as developmental in nature. In the first place, control and eradication of an epizoötic disease assumes economic importance because it enables cattle to be moved, and trading to take place, and as a consequence a satisfactory meat and milk supply. Further, it will be gathered from the paragraphs dealing with rinderpest, that freedom from stock disease ensures the tranquillity of the domestic economy of a tribe, and in purely pastoral communities their very existence.

The hide trade in Uganda is not inconsiderable, and the Veterinary Service has been responsible for continuous development in this direction. The natives are taught the correct methods of flaying and preparing a hide for export, and a number of trained assistants concentrate on this aspect of education and development.

Ghee, or clarified butter, has a considerable economic value in Africa and the East, and efforts are being made to encourage the native stock owner to dispose of his surplus milk for this purpose. The improvement of the native stock by castration of weedy and undesirable bulls is constantly been carried on.

Stock industry and animal husbandry is entirely dependent on the disease position and the pendulum of progress in this direction must inevitably swing backwards in the presence of contagious disease.

Hence, a Veterinary Service must control disease, and then consolidate its position by stock improvement and economic development. It must, however, be prepared to return to the early stage of disease control at any time, for, in Africa, development has many setsback, and spectacular progress, at any rate as far as stock is concerned, is fraught with pitfalls.

At Random

The reader perusing the foregoing will possibly wonder whether the Uganda Veterinary Service is all work and no play, so perhaps a short description of the general conditions as appertaining to a Veterinary Officer's life might be of interest.

His headquarters are in the administrative centre or station in his district, where he has a permanent house, provided and partially furnished by Government. In the station he has as colleagues the Administrative Officers, Medical Officer, Agricultural Officer and so forth. There are tennis courts everywhere, and golf courses at most stations. A car is essential, and he can cover most of his district by this means of transport, although of course he often has to leave his car and carry on by push bike or walking to the various cattle centres.

There is an excellent system of rest houses maintained by the local chiefs for the use of government officials on tour.

(*Concluded at foot of Col.* 1, *Page* 232.)

PARASITIC WORMS OF DOGS AND CATS IN PALESTINE

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While studying, during the last five years, the parasitic worms of man and animals in Palestine, the author paid special attention to those of domestic carnivora. This was due to two main reasons: it was important to establish (1) to what extent the domestic carnivora may serve as a source of worm infection of man in this country, and (2) what species of worms they harbour and to what extent these worms are pathogenic. The latter question was particularly important to research laboratories where dogs and cats are used as experimental animals.

A part of the data obtained has already been published elsewhere, in articles dealing with classification and life history of the local worms. In the present article only a review of helminthological dissections of 30 dogs and about 50 cats is given and more interesting observations concerning the biology and pathological rôle of the worms found are summarised. Most of these observations were originally made by other investigators, but were also repeatedly confirmed by the present author during numerous experiments in which more than 100 dogs and cats were used.

It should be emphasised that in spite of the philogenetic distinction between dogs and cats they have, for the most part, common parasitic worms. The usually unequal distribution of particular species of worms in dogs and cats may be explained not solely by their zoological distinction but also by the different behaviour of these animals.

Most of the systematic surveys made to establish the helminth fauna of dogs and cats were made in the temperate zone. It is quite natural therefore that Palestine, as a country with partly sub-tropical and partly tropical climatic conditions, should reveal some unusual and interesting features. The most striking of them is the abundance of species: 40 out of the 169 species of parasitic worms recorded from dogs and cats were found in Palestine, a figure unprecedented in any other country.

The modern authors who investigated the helminth fauna of dogs and cats give the following numbers of species of parasitic worms occurring in these animals in various countries.*

Author.	*Year.*	*Country.*	*Number of species in* Dogs.	Cats.
Chandler	1925	Calcutta (India)	—	12
Gordon and Young	1922	Manaos (Brazil)	7	3
Hall	1923	U.S.A.	28	13
Issaitschikoff	1925	East Siberia	9	9
Lewis	1927	Aberystwyth (Wales)	7	9
Penkacki	1929	Warsaw (Poland)	18	—
Petroff	1928	Sakhalin	10	7
Popoff	1924	Armenia.	11	9
Skriabin	1924	Don district (S. Russia)	19	23
Present study		Palestine	35	28
Recorded in the literature			133	90

The unequal distribution of the worms in this small country is similarly noteworthy and is due to marked differences in climatic conditions in neighbouring districts separated only by a one-hour trip by car. Moreover, the helminth fauna of dogs and cats in the towns differs from that in the surrounding country.†

The dogs and cats which provided the material for the present paper were caught in Jerusalem, Tel-Aviv, Tiberias, Jericho and some other localities. The dissections were made under laboratory conditions and the animals were for the most part sacrificed immediately before the

*These figures (except those of Hall) are results of systematic investigations and they do not take into account the species which were occasionally found and described by other authors in corresponding countries.

†On the other hand it was observed that a species usually abundant in a particular locality may suddenly diminish considerably in occurrence. For this reason, the percentage of infection with particular species of worms appears to be of limited value and is not therefore quoted in the present paper.

Shooting, both big game and birds, varies in different localities, but in almost every district it can be obtained.

A Veterinary Officer is a vital member of the official community, and he can have an enjoyable and interesting life. Although at times it is hard work and occasionally monotonous, a man with a biological training is never without something to interest him, even in the most remote parts of the African bush.

I have to thank the Director of Veterinary Services, Uganda, for permission to publish this article.

investigation. All organs were thoroughly searched for worms, mainly by means of repeated washing and examining the cleansed sediment in black containers in sunlight. In some instances scrapings of mucous membranes or other tissues were examined under the microscope in order to reveal the smallest forms.

One hundred per cent. of dogs and 90 per cent. of cats appeared to be infected with parasitic worms.† The average dog or cat has been found to be infected with four species of worms. The greatest number of species found in a single dog was ten, in a cat 15. The number of specimens varied considerably in animals taken even from the same house. In some instances the worms could be counted in hundreds. In some cases of *Dipylidium caninum, Joyeuxia pasqualei, Mesocestoides lineata* and *Toxascaris leonina,* the worms formed masses which blocked the intestine.

The greater part of the species found (37 out of 63) were parasites of the intestines, one species—*Metorchis albidus*—of the gall-bladder, one species—*Dilhyridium elongatum*—of the body cavities, one species—*Trichinella spiralis*—of the muscles, one species—*Spirocerca sanguinolenta*—of the wall of the aorta, œsophagus and stomach, and one—*Dirofilaria repens*—of the connective tissue.

The parasitic worms of Palestinian dogs and cats belong to four groups: *Trematoda, Cestoda, Nematoda* and *Acanthocephala.* There is still one group of worms which undeniably parasitize these animals—leeches. These parasites are abundant throughout Palestine and are not particular in their choice of hosts. However, the author possesses no data concerning their occurrence in dogs or cats.

Trematoda

Sixteen species of Trematoda parasitize dogs and cats in Palestine. Though they belong to four different families they have a similar life history and require fish as intermediate host. Thirteen of them belong to the family *Heterophyidæ*; they are very small, usually less than 2 mm. in length, and are characterised by a peculiar genital organ, the so-called "gonotyl." Some of them are common, others rare. In Palestine these worms are common everywhere where fish are accessible to the animals, especially in the towns, where the refuse boxes are a constant source of infection. The larvæ of the *Heterophyidæ* (so-called metacercariæ) are microscopical in size (0·1-0·2 mm.), and are encysted in the muscles of fishes. Sometimes they are so numerous that one gram of muscle may contain more than a thousand larvæ. Larvæ of some species of these Trematoda are found only in fresh-water fishes, others in sea fishes.

If the larvæ are swallowed in the living state, by a dog or cat (as well as by man) they encyst in the intestine and develop into adult worms. The larvæ are very resistant to light and cold, while dryness kills them slowly. Fortunately they are very sensitive to the heat and are killed by 60°C. in three minutes. Thus boiling or cooking fish makes it safe for animals as well as for man. Cooling to 0°C. does not apparently kill the metacercariæ. Frozen fish bought on the market often contains living metacercariæ.

The presence of the adult worms in animals may easily be determined by the presence of their peculiar eggs in the stools. It is not yet established to what extent the *Heterophyidæ* are harmful. In experimental animals, very large numbers of these parasites (up to 10,000) may not produce evident symptoms. It may, however, be admitted that in some instances they produce damage to the intestinal walls, by the sharp spines covering their bodies, and thus facilitate the introduction of other infective agents.

Thymol (in doses of 1·0 gram) and fern extract (5·0 grams) followed by a purgative proved to be useful as anthelmintics against the *Heterophyidæ* for medium-sized animals in our experiments. However, at least two administrations of the drug, with short intervals, are necessary to produce a curative effect.

Some of the *Heterophyidæ* are not rare parasites of man in Palestine. One should not, however, incriminate our animals in this respect, for man infects himself not from the animals but from a common source, *i.e.,* from the fish. These small parasites are apparently more harmful for man than for animals, but their effects are not yet decidedly proved experimentally.

The remaining four species of Trematodes occurring in Palestine, namely, *Prohemistomum vivax, Echinochasmus lilipulanus, E. mordax* and *Metorchis albidus,* are also transmitted to the animals through eating uncooked fish.* The first three live in the intestine of dogs and cats and occur often in large numbers, together with *Heterophyidæ. Metorchis albidus* is a rather rare parasite of the gall-bladder of cats and is usually found in small numbers. These species do not occur in man and their pathological rôle in animals remains to be elucidated. It may be noted that both-mentioned species of the genus *Echinochasmus* have so far been known only as parasites of birds in Egypt.

Cestoda

Dipylidium caninum is the most frequent,

†The percentage of infected dogs and cats in other countries is similarly high.

*In fresh-water species, mainly of the genera *Tillapia* and *Barbus.*

though usually harmless, tapeworm of dogs and cats throughout Palestine. It occurs less often in the hotter parts of the country, where it is replaced by other *Dipylidiinæ*: *Joyeuxia pasqualei, J. echinorhyncoides, Diplopylidium noelleri* and *Diplopylidium acanthotetra.* Not infrequently several of these species parasitize the same animal.

The early stage of *Dipylidium caninum* develops (as proved by other investigators) in the larvæ of fleas, which swallow the worm eggs discharged by infected animals. Later on, when the adult flea is swallowed by the dog or cat the *Dipylidium* larva escapes in the intestine of the latter and gives rise to adult worm.

It may occur that an infected flea jumps into the dish with food and is swallowed by a child; then human infection may follow. This, however, seldom occurs.

In the case of other *Dipylidiinæ* named above, the life-history is more complicated. A coprophagous insect is probably involved as the first intermediate host in which the first stage larva of the worm develops. The insect must be swallowed by a lizard or a snake, in which the second stage larvæ of the worm develop. The latter have the appearance of small white globules (up to 2 mm. in diameter) scattered in the connective tissue and under the serous coats of various reptiles and are frequently found in Palestine. If the infected lizard or snake is in turn swallowed by a dog or cat, the larva encysts, attaches itself to the intestinal wall and develops into an adult worm in the course of three weeks.

Mesocestoides lineata is quite common in dogs and cats in some localities, especially in Jericho. It lives in the ileum and occurs sometimes in large numbers. The dog is probably the most suitable host, for in it the worms are always large (from 40 to 150 cm. long), while in cats (as well as in foxes) they are small (5 to 30 cm.). *Mesocestoides cæstus,* which should probably be regarded as a variety of the preceding species, is rare in Palestine. It has been found by the author once in a cat.

The life history of *Mesocestoides* tapeworms is not yet elucidated completely. It has been established, by the present author and other investigators, that unarmed cestode larvæ, so-called *Tetrathyridium,* found encysted in various organs or free in the serous cavities of vertebrates (reptiles, birds and mammals, including dogs and cats), give rise to adult *Mesocestoides lineata* when swallowed by a suitable host. Palestinian cats (as well as hedgehogs, lizards, etc.) not infrequently harbour *Tetrathyridium elongatum,* a species reaching 60 mm. in length (when fully distended), sometimes more than 100 specimens being present free in the abdominal or thoracic cavities or encysted in the omentum. They, however, have not been found in dogs in this country. When fed to experimental dogs, they invariably give rise to adult *Mesocestoides.* However, in cats (as well as in mice and probably in other unsuitable hosts) they seldom develop into an adult stage but often reach serous cavities to remain there in the *Tetrathyridium* stage. In natural conditions small mammals and reptiles harbouring *Tetrathyridia* are the main source of infection with *Mesocestoides lineata.* According to the opinion of Moniez (1880) the *Tetrathyridia* found in birds are larvæ of *Mesocestoides perlata.*

It is not yet clear how the vertebrates acquire their *Tetrathyridia* other than in the cases when they swallow them with other vertebrates. It is probable that coprophagous insects are the first intermediate hosts from which the vertebrates take the infection. This is based on the fact that it is impossible to infect a vertebrate by feeding eggs of *Mesocestoides.*

Reditænia tæniæformis occurs throughout Palestine, but is quite rare. The larvæ of this worm develop in mice and rats which swallow worm eggs discharged by cats. The eggs of this species have a thick shell and apparently withstand dryness. This explains the fact that white mice and rats reared in isolated cages are not infrequently infected with *Reditænia* through eggs which are brought from outside on the food.

Tænia hydatigena is frequently found in dogs. This fact may be explained by the poor state of meat inspection in this country. The bladder-shaped larvæ of this parasite, which develop on the serous coats of sheep (and swine in other countries), so-called *Cysticercus tenuicollis,* are also very common.

Tænia pisiformis and *Multiceps serialis* both parasitize only dogs, and are rather rare in Palestine. Their larvæ develop in rabbits and hares. The larvæ of *Tænia pisiformis,* so-called *Cysticercus pisiformis,* develop on the mesentery and omentum of these animals and appear as pea-like semi-transparent bladders, often grouped in clusters. The larvæ of *Multiceps serialis* appear as walnut-sized transparent bladders containing numerous large scolices. They develop under the skin or in the intermuscular tissue of hares or rabbits and are known under the name of *Cœnurus serialis.*

Echinococcus granulosus (synonym—*Tænia echinococcus*) is the most important parasite of dogs, in relation to human and animal hygiene. This tiny tapeworm, seldom reaching more than 5 mm. in length, is quite a common parasite of dogs in this country. The investigation of Jerusalem stray dogs revealed that 20 per cent. of them harbour this worm, and sometimes in very large quantities. The worm apparently causes little harm to the dog, but constantly produces eggs, which are spread in the vicinity. If swallowed by man, cattle,

horses, camels and other animals (but not by dogs!), they give rise to bladder-like larvæ (hydatids), which may develop in almost every part of the body and cause hydatid disease. The hydatids contain scolices of *Echinococcus*, which give rise to adult worm if swallowed by dogs. As the inspection of meat is not performed in all localities in this country, the dogs have ample opportunity to infest themselves through the meat refuse left on the slaughter places or fed to them by ignorant proprietors. Thus the high percentage of the infected dogs presents a real danger to man and domestic animals. Fortunately enough, the dry and sunny climate of Palestine apparently kills the eggs of *Echinococcus* and hydatid disease is therefore relatively rare in man.

It should be emphasised that the jackals share with the dog the rôle of disseminator of *Echinococcus* in this country. Ten per cent. of these animals caught in the vicinity of Jerusalem harbour adult *Echinococcus*. This is especially interesting, in view of the fact that so far *Echinococcus* tapeworms were found in jackals only in two doubtful cases. The ease with which jackals are infected was proved by the present author experimentally.

Nematoda

The following three species of Ascarids (*Toxascaris leonina, Toxocara canis* and *Toxocara mystax*) and two species of hookworms (*Ancylostoma caninum* and *Uncinaria stenocephala*) do not require any intermediate host for the transmission from one animal to another and they are therefore the commonest. In animals enjoying much freedom they are usually not numerous and produce little or no harm. However, in chained dogs, especially those kept in dirty conditions, they may develop, during a short time, to a very large number and produce serious disturbances in health.

Toxascaris leonina is the commonest worm in dogs. Sometimes the number of worms is so large that they block the upper part of the intestine. This occurs mainly in chained dogs and is due to the great vitality of the eggs of the worm, which are resistant to sunlight, dryness and disinfectants. A place once polluted serves for a long time as a source of infection.

Toxocara canis, a species resembling the preceding one, but much larger (reaching 30 cm. in length), occurs also only in dogs. It is rather rare and has never been found in such numbers as *Toxascaris*.

In spite of their large size, and even when in large numbers, the ascarids of dogs often do not produce symptoms, except occasional vomiting, during which they are discharged. This usually alarms the proprietors of the animals and compels them to look for veterinary help. Many drugs are proposed to remove ascarids from dogs and many of them are good. The present author proposes naphthalene, which is cheaper than other anthelmintics and proved to be very efficient. A single dose of 1-2 grams, with subsequent purgative, often removes 100 per cent. of the worms and produces no ill-effects or any injury to the animal.*

Toxocara mystax, the cat ascaris, is quite common in this country. It never occurs in large numbers but nevertheless it often produces discomfort and vomiting.

Ancylostoma caninum and *Uncinaria stenocephala*, the dog hookworms, are quite common in Palestine. The former occurs mostly in the lower parts of the country in dogs and rarely in cats (as well as in jackals), while the latter is distributed mostly in the highlands and was found only in dogs. *Ancylostoma* is more pathogenic than *Uncinaria* and often produces serious hæmorrhagic inflammation of the duodenum and anæmia.

The other Nematodes require intermediate hosts for their development. *Rictularia cahirensis*, previously known from Egypt and Russian Turkestan, proved to be a common parasite of dogs and cats throughout Palestine. This small nematode is of very peculiar appearance, for it is armed along the whole body with two rows of large scales. It requires two intermediate hosts for the complete development. One of them, not yet established, is probably a coprophagous insect. The second one is a lizard or snake which harbours encysted larvæ of the worm under the serous coats. In other words, this parasite has a life-history similar to that of *Joyeuxia* and *Diplopylidium* tapeworms. Indeed, larvæ of all these worms often occur in the same lizard or snake and the adult worms in the same dog or cat (or jackal).

Spirocerca sanguinolenta occurs quite commonly throughout Palestine in dogs (as well as in jackals and more seldom in foxes). Both juvenile and adult stages of this worm are often found in the same host. The adult worms live in fibromas on the œsophagus, which can reach the size of a walnut, and the juvenile stage in small nodules on the wall of the thoracic aorta.

The occurrence of both young and adults in the same host has been known for a long time, but it was explained only recently by Faust (1927). It has been known, since the investigation of Seurat (1916), that *Spirocerca* requires a coprophagous beetle as an intermediate host. The beetle acquires the first stage larva while swallowing fæces of an infected dog containing eggs of the parasite. When the beetle is eaten by a dog, the encysted larva escapes in the stomach of the latter and migrates to its destination, *i.e.*, to the œsophagus, in a very com-

*It is probable that naphthalene will also prove suitable for the expulsion of ascarids from foxes reared in pens.

plicated manner which will be explained later. It occurs, however, more often that the beetle is eaten by an unsuitable host; for instance, by a lizard, snake or small mammal or bird. In these instances, the larval *Spirocerca* escapes from the digested beetle, migrates to any place in the new host and encapsules for the second time in its connective tissue. Thus it is seen that a second facultative intermediate host can be introduced in the life-history of *Spirocerca* and this probably occurs often. In Palestine, many lizards (mostly *Stellio vulgaris*), owls, hedgehogs, etc., are infected with encysted larvæ of this parasite and may be easily used for experimental infection of dogs.

If the encysted *Spirocerca* larva reaches the stomach of a dog with the beetle or other intermediate host it escapes from its cyst, burrows actively into the wall of the stomach, reaches the blood system and goes through the liver, right heart and lungs up to the thoracic aorta. While passing the latter organ it manages to pierce its intima and starts to proceed slowly towards the œsophagus. The penetration through the wall of the aorta lasts for months. The invasion of *Spirocerca* is accompanied by severe lesions, often a purulent panarteritis, but eventually the canal behind the larva becomes closed by fibrous growth. Occasionally, however, the weakened aorta ruptures and a fatal hæmothorax follows.* It is remarkable that dogs and jackals remain apparently healthy in spite of gross lesions of the aorta. Usually the young *Spirocerca*, which has increased in size, escapes safely from the wall of the aorta and penetrates into the adjacent outer surface of the œsophagus. In the place of penetration a fibrous tumour arises under the mucosa, in which one or several *Spirocercæ* find their permanent location. After the worms have matured they make an opening through the mucosa inside the œsophagus and discharge their excretions and eggs. It is noteworthy that in spite of the specific irritation produced by the worms, which causes the fibrous growth under the mucosa of the œsophagus, the mucosa itself does not show any hyperplasia.

If there are few worms, their presence may be harmless to the dog. Several tumours may, however, considerably interfere with the swallowing of food or cause various disturbances in the physiology of the dog by pressure on neighbouring nerves.

No remedy, unfortunately, is known against this worm.

Dirofilaria repens is a rare parasite of intermuscular or subcutaneous connective tissue of dogs in Palestine. It produces not eggs but microfilariæ, which may be detected in the blood of the dog. The parasite, as proved in other countries, is transmitted from one animal to another by mosquitoes.

Trichinella spiralis is a rare parasite of Palestinian cats, and was obtained once experimentally in a dog. The experimental trichinosis of dogs is not extraordinary, for dogs are known to be very susceptible to this infection. In some countries up to 5 per cent. of dogs and 12 per cent of cats† are naturally infected. In the case of our experiment the interest consists rather in the material used for the infection, which was not pork or rat, which serve as reputed sources of trichinosis, but muscles of a wild animal, a mongoose (*Herpestes ichneumon*) caught in the vicinity of Beersheba. The fact indicates that *Trichinella spiralis* must not necessarily be connected with swine or rat, as it is usually supposed, but may exist in nature in wild animals.

Acanthocephala

Two species of Acanthocephala are occasional parasites of domestic carnivores in Palestine: *Prosthenorchis pachyacanthus* in dogs and cats and *Centrorhynchus clitorideus* in cats. The true hosts of the former are jackals and those of the latter are owls and hawks. The infection occurs by eating small animals, mostly snakes and lizards, harbouring the larvæ of these parasites under the serous coats or in the connective tissue. Dogs and cats should be regarded as unsuitable hosts for these worms, for though the latter may reach maturity they cannot survive for a long period. In experimental animals they begin to pass out in the third month.

* * * * *

CHECK LIST OF WORM PARASITES RECORDED FROM DOG AND CAT*

Trematoda

1.	*Adleriella minutissima* (Witenberg, 1929)	+, d, c
2.	*Alaria alata* (Goeze, 1782)	d
3.	„ *americana* Hall and Wigdor, 1918	d
4.	„ *michiganensis* Hall and Wigdor, 1918	d
5.	„ *mustelæ* Bosma, 1931	d, c
6.	*Apophallus muehlingi* (Jaegerskjøld, 1899)	d, c

*Three such cases occurred among dogs used for various experiments in the Hebrew University.

†In Minnesota, according to Riley (1928).

*+ denotes species found in Palestine and referred to in this paper.
d—denotes species recorded in dog.
c—denotes species recorded in cat.
The two letters are included in brackets when the host is subject to doubt; one of them is in italic if the parasite has been found in Palestine only in one of two recorded hosts.

7. *Centrocestus cuspidatus* Looss, 1899 d
8. *Clonorchis sinensis* (Cobbold, 1875) d, c
9. *Cryptocotyle concavum* (Creplin, 1825) ... ... d, c
10. „ *quinqueangulare* (Skriabin, 1923) c
11. *Dexiogonimus ciureanus* Witenberg, 1929 ... ... +, d, c
12. *Dicrocœlium dendriticum* (Rudolphi, 1819) ... ... d
13. *Diorchitrema pseudocirratum* Witenberg, 1929 +, d, c
14. *Distoma calapai* Nakagawa, 1919 ... c
15. *Echinochasmus elongatus* Miki, 1923 d
16. „ *grandis* Kurizu, 1931 d
17. „ *liliputanus* (Looss, 1896) ... ... +, d, c
18. „ *mordax* (Looss, 1899) +, d
19. „ *perfoliatus* (v. Ratz, 1908) ... ... d, c
20. „ *schwartzi* Price, 1931 d
21. *Echinoparyphium koidzumii* Tsuchimochi d
22. *Echinostoma revolutum* (Frœlich, 1802) d
23. *Eurytrema rebelle* Railliet, 1915 ... d
24. *Haplorchis pumilio* (Looss, 1896) ... +, d, c
25. „ *taichui* (Nishigori, 1924) +, d, c
26. *Heterophyes æqualis* Looss, 1902 ... +, d, c
27. „ *dispar* Looss, 1902 ... +, d, c
28. „ *heterophyes* (Siebold, 1852) ... ... +, d, c
29. *Isthmiophora melis* (Schrank, 1788) ... d, c
30. *Lepoderma massinoi* (Petrov and Tichonov, 1927) ... ... d
31. „ *popowi* (Palimpsestov, 1929) ... ... d
32. *Mesorchis denticulatoides* Issaitschikoff, 1925 d
33. *Metagonimus yokagawai* (Katsurada, 1912) ... ... d, c
34. „ *minutus* Katsuta, 1932 (d)
35. *Metorchis albidus* (Braun, 1893) ... +, c
36. *Opisthorchis caninus* Barker, 1919 ... d
37. „ *felineus* (Rivolta, 1884) d, c
38. „ *norverca* Braun, 1903 ... d
39. „ *pseudofelineus* (Ward, 1901) c
40. „ *wardi* Wharton, 1921 ... c
41. *Ornithobilharzia turkestanica* (Skriabin, 1913) c
42. *Paragonimus kellicotti* Ward, 1908 ... d, c
43. „ *ringeri* (Cobbold, 1880) c
44. *Parametorchis complexus* (Stiles and Hassall, 1894) c
45. „ *noveboracensis* Hung, 1926 c
46. *Parascocotyle ascolonga* Witenberg, 1929 ... ... +, d, c
47. „ *italica* (Alessandrini, 1906) ... ... +, d
48. „ *longa* (Ransom, 1920) +, d, c
49. „ *minuta* (Looss, 1899) d, c
50. *Pharyngostomum cordatum* Ciurea, 1922 c
51. „ *fausti* Skriabin and Popow, 1930 c
52. *Platynosoma fastosum* Kossack, 1910 c
53. *Prohemistomum industrium* Tubangui, 1912 ... ... d
54. „ *vivax* (Sonsino, 1893) +, d, c
55. *Pseudamphistomum danubiense* Ciurea, 1913 c
56. „ *truncatum* (Rudolphi, 1819) c
57. *Pygidiopsis genata* Looss, 1907 ... +, d, c
58. *Schistosoma japonicum* Katsurada, 1904 ... ... d, c
59. *Stamnosoma formosanum* Nishigori, 1924 ... ... d, c
60. *Stephanolecithus parvus* Nakagawa, 1919 ... ... d
61. *Stictodora sawakinensis* Looss, 1899 +, d, c
62. *Tauridiana pontica* Issaitschikoff, 1925 d
63. *Tocotrema donicum* (Skriabin, 1919) d, c
64. „ *lingua* (Creplin, 1825) ... d, c
65. *Troglotrema mustelæ* Wallace, 1932 d, c
66. „ *salmincola* (Chapin, 1926) d, c

Cestoda

1. *Dibothriocephalus americanus* (Hall and Wigdor, 1918) ... d
2. „ *cordatus* (Leuckart, 1863) ... ... d
3. „ *erinacei* (Rudolphi, 1819) ... ... d
4. „ *felis* (Creplin, 1825) (= *D. decipiens*) ... ... d, c
5. „ *fuscus* (Krabbe, 1866) d
6. „ *houghtoni* Faust, Campbell and Kellog, 1929 d, c
7. „ *latus* (Linnaeus, 1758) d
8. „ *mansoni* (Cobbold, 1882) ... ... d, c
9. „ *okumurai* Faust, Campbell and Kellog, 1929 d
10. „ *raillieti* (Ratz, 1913) d
11. „ *ranarum* (Gastaldi, 1854) ... ... d
12. „ *serratus* (Diesing, 1850) d
13. *Diplopylidium acanthotetra* (Parona, 1886) ... ... +, d, c
14. „ *nœlleri* (Skriabin, 1924) +, d, c
15. *Dipylidium caninum* (L) ... ... +, d, c
15A. *Dithyridium elongatum* (Blumberg, 1882)* ... ... +, d, c
16. *Echinococcus granulosus* (Batsch, 1786) ... ... +, *d*, (c)
17. *Joyeuxia echinorhyncoides* (Sonsino, 1889) ... ... +, d, c

**Dithyridium elongatum* is a larva of *Mesocestoides lineata* and therefore should not be considered as separate species.

18. „ *pasqualei* (Diamare, 1893) +, d, c
19. *Mesocestoides cæstus* Cameron, 1925 +, c
20. „ *lineata* (Goeze, 1782) +, d, c
21. *Multiceps brauni* (Setti, 1893) ... d
22. „ *gaigeri* Hall, 1916 ... ... d
23. „ *multiceps* (Leske, 1780) (= *T. cœnurus*) ... ... d
24. „ *packi* Christenson, 1929 ... d
25. „ *serialis* (Gervais, 1847) ... +, d
26. „ „ var. *theropitheci* Schwartz, 1927 ... ... d
27. *Ophiotænia punica* (Kholodkowsky, 1908) ... ... (d)
28. *Reditænia tæniæformis* (Batsch, 1786) (= *T. crassicollis*) ... +, (d), c
29. *Tænia antarctica* Fuhrmann, 1921 ... d
30. „ *balaniceps* Hall, 1910 ... ... d
31. „ *brachysoma* Setti, 1899 ... d
32. „ *cervi* Christiansen, 1931 ... d
33. „ *hydatigena* Pallas, 1766 (= *T. marginata*) ... ... +, d
34. „ *krabbei* Moniez, 1879 ... ... d
35. „ *novella* Neumann, 1896 ... c
36. „ *ovis* (Cobbold, 1869) ... ... d
37. „ *pisiformis* (Bloch, 1786) (= *T. serrata*) ... ... +, *d*, c
38. „ *solium L.* (only larvæ = *Cysticercus cellulosæ*) ... ... d

Nematoda

1. *Acanthocheilonema dracunculoides* Cobbold, 1870 ... ... d
2. „ *grassi* (Noé, 1907) d
3. „ *reconditum* (Grassi, 1889) d
4. *Ælurostrongylus abstrusus* (Railliet, 1898) c
5. *Ancylostoma brasiliense* Gomez de Faria, 1910 ... ... d, c
6. „ *caninum* Ercolani, 1859 +, *d*, c
7. „ *duodenale* Dubini, 1843 d
8. *Angiostrongylus vasorum* (Baillet, 1866) ... ... d
9. *Arthrostoma felineum* Cameron, 1927 c
10. *Ascaris lumbricoides* Linnæus, 1758 (d)
11. *Capillaria ærophila* (Creplin, 1839) d, c
12. „ *felis-cati* (Diesing, 1851) c
13. „ *hepatica* (Bancroft, 1893) d, c
14. „ *linearis* (Leidy, 1856) ... c
15. „ *plica* (Rudolphi, 1819) ... d
16. *Chlamidonema præputiale* (Linstow, 1889) ... ... d, c
17. *Cylicospirura subæqualis* (Molin, 1860) c
18. *Dioctophyme renale* (Goeze, 1782) ... d
19. *Dirofilaria immitis* (Leidy, 1856) ... d
20. „ *repens* Railliet and Henry, 1911 ... ... +, d
21. *Fuellebornius medinensis* (Linnæus, 1758) (= *Dracunculus persarum*) ... ... d
22. *Gnathostoma spinigerum* Owen, 1836 d, c
23. *Metastrongylus apri* (Gmelin, 1790) ... d
24. *Microfilaria auquieri* Foley, 1921 ... d
25. „ *lewisi* Korke, 1924 ... d
26. „ *ochmanni* Fulleborn, 1908 d
27. *Necator americanus* (Stiles, 1902) ... d
28. *Ollulanus tricuspis* (Leuckart, 1865) c
29. *Oslerus osleri* (Cobbold, 1879) ... d
30. *Oxyuris compar* Leidy, 1856 c
31. *Physaloptera canis* Moennig, 1929 d
32. „ *gemina* Linstow, 1899 c
33. „ *pacitæ* Tubangui, 1925 c
34. „ *rara* Hall and Wigdor, 1918 ... ... d
35. *Protospirura gracilis* Cram, 1924 ... c
36. *Rhabditis clavopapillata* Faust, 1933 d
37. „ *macrocerca* Faust, 1933 ... d
38. *Rictularia cahirensis* Jaegerskjøld, 1924 ... ... +, d, c
39. *Sobolitrema baturini* Petrov, 1930 ... c
40. *Spirocerca sanguinolenta* (Rudolphi, 1819) ... ... +, d
41. „ *arctica* Petrov, 1927 ... d
42. *Spirura rytipleurites* (Deslongchamps, 1824) c
43. *Strongyloides canis* Brumpt, 1912 ... d
44. „ *stercoralis* (Bavay, 1876) d
45. „ „ var. *felis* Chandler, 1925 c
46. *Thelazia californiensis* Price, 1930 d
47. „ *callipæda* Railliet and Henry, 1910 ... ... d
48. *Toxascaris leonina* (Linstow, 1902) +, *d*, c
49. „ *limbata* Railliet and Henry, 1911 ... ... d
50. *Toxocara canis* (Werner, 1782) ... +, d
51. „ *mystax* (Zeder, 1800) ... + c
52. *Trichinella spiralis* (Owen, 1835) ... +, d, c
53. *Trichocephalus campanula* Linstow, 1889 c
54. „ *serratus* Linstow, 1879 c
55. „ *vulpis* (Froelich, 1789) d
56. *Uncinaria stenocephala* (Railliet, 1884) +, d

Acanthocephala

1. *Centrorhynchus aluconis* (Müller, 1780) c
2. „ *clitorideus* (Meyer, 1931) ... ... +, c
3. „ *erraticus* Chandler, 1925 c
4. *Corynosoma strumosum* (Rudolphi, 1802) c
5. *Moniliformis moniliformis* (Bremser, 1811) ... ... d, c
6. *Oncicola canis* (Kaupp, 1909) ... d
7. *Prosthenorchis pachyacanthus* (Sonsino, 1889) +, d, c
8. „ *pardalis* (Westrumb, 1821) c
9. *Pachysentis canicola* Meyer, 1931 ... (d)

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Clinical Report

SOME FACTORS ASSOCIATED WITH MILK FEVER OF EWES IN CANTERBURY, NEW ZEALAND

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Since a definite correlation between diet and/or production and susceptibility to milk fever has not yet been established, the following notes on milk fever of ewes in Canterbury, New Zealand, may be of value to those interested in a preventive dietary. It was not until 1931[1] that milk fever of ewes was recognised in Canterbury. A few suspicious cases occurred in 1930, but, in the absence of bio-chemical data,[2] these were diagnosed as atypical cases of pregnancy disease.

Incidence.—Isolated cases are not uncommon and where flock inspections are infrequent deaths from milk fever are not rare. The highest incidence before lambing was 12 per cent. in a flock of 450 half-bred, six- and eight-tooth and full-mouthed in-lamb ewes (September, 1932) a week off lambing, and after lambing 7½ per cent. in a flock of 400 three-quarter-bred, aged ewes (November 1933), ten weeks after the start of lambing. Cases have been diagnosed, biochemically, as early as 14 days before parturition, during the act of lambing, and up to twelve weeks after the commencement of lambing.

Fertility, Age and Breed.—Out of 250 cases treated in the last three years, 87 per cent. had singles and 13 per cent. twins. Of six cases recognised in " dry " ewes two were established biochemically. Like heifers, young ewes appear to be insusceptible. Six- and eight-tooth and aged ewes are the commonest subjects. In 1932 three *post-partum* cases occurred in experimental ewes of known *ante-* and *post-partum* nutritional history. The growth rates of their progeny, used as a measure of milk production, did not indicate that the ewes were good milkers. Cases have been diagnosed in stud Romneys, Southdowns, English Leicesters, and Corriedales; the incidence is highest in half-breds, three-quarter-breds and crossbreds.

Management of Milk Fever.—As indicated elsewhere[3] in-lamb and lambed ewes receiving a high protein diet consisting chiefly of growing

oats, wheat and barley are most susceptible. Diets rich in sorrel are frequently associated with milk fever development. A sudden change of diet often precipitates the condition and the common practice of lambing poorly fed ewes on to green oats, wheat or barley is frequently followed by outbreaks. Eight outbreaks (1931-32-33) (incidence 3 per cent., 450 ewes; 5½ per cent., 250 ewes; 2 per cent., 600 ewes; 2½ per cent., 270 ewes; 2 per cent., 120 ewes; 5½ per cent., 600 ewes; and 6 per cent., 320 ewes) occurred in lambed ewes in November and December (lambed August and September) whilst the ewes were *penned up for* 12 *to* 48 *hours* in the yards and shearing shed awaiting shearing. In these outbreaks the period between the commencement of lambing, which generally lasts about six weeks, and shearing, has varied from eight to twelve weeks. The greatest weight of lamb of affected ewes has been 38 lbs. It is common for practically all milk fever cases occurring in large outbreaks to develop within 12 to 48 hours of each other. A change of diet does not appear to affect the issue.

Diet and Milk Fever.—There is some justification for thinking that ewes poorly nourished during the pregnancy period have their susceptiblity increased when allowed a highly nitrogenous diet. Experiment[4, 5] under Canterbury conditions has shown that a diet containing a sufficiency of green oats, wheat or barley in the absence of natural green herbage is practically a specific preventive for pregnancy disease of ewes. In 1932-33 field work revealed information which suggests that such a diet, if used in excess for long periods, may actually predispose ewes susceptible to pregnancy disease to milk fever. Body weights of ewes fed green oats for a long period indicate that this is a slimming diet. In 1932, 60 lambed ewes were fed green oats alone for twelve weeks, but no cases of milk fever occurred although in practice cases occur within a much shorter period. Probably the number used was either too small or did not contain susceptibles. *Post-partum* outbreaks of milk fever have been diagnosed in flocks that had experienced losses from (*a*) pregnancy diseases and (*b*) pulpy kidney of lambs.

The fact that " dry " ewes, poor producers, and inadequately fed in-lamb ewes may develop acute hypocalcæmia under the peculiar dietary conditions of intensive farming in Canterbury detracts from the significance attached to high milk production as a factor of predisposition. There is suggestive evidence that a preparturient diet capable of producing mineral and endocrinological imbalance and pregnancy disease, probably through the cumulative effects of faulty diet as age proceeds, may actually precipitate milk fever when its protein content is suddenly increased as is the case when green oats, wheat or barley are fed *ad libitum*, as a preventive for pregnancy disease.

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THE FOURTH SCANDINAVIAN VETERINARY CONGRESS

The above Congress was held at Helsingfors, Finland, from July 10th-12th, 1933. The first Congress was held in 1902 at Copenhagen. The Helsingfors meeting was attended by 89 Danish, 62 Norwegian, 120 Swedish and 150 Finnish veterinary surgeons under the presidency of Dr. Hindersson (Helsingfors). On the evening of the 9th, a meeting to welcome visitors was held at the Brandö casino, and on the 10th the formal opening meeting took place at the University in the presence of State, municipal and military delegates; in the evening, there was a banquet at Brunshufet. The two full meetings of the Congress were devoted (1) to the diagnosis of open forms of tuberculosis and discussion of a note by Dr. Hedström, Stockholm, on B.C.G. vaccination; (2) to examining methods of prophylaxis against contagious abortion in the light of reports submitted by Professor Holth, Oslo, and Professor O. Bang, Copenhagen. The eight sectional meetings were concerned with the discussion of papers upon the control of the milk supply, the treatment of milk fever, osteomalacia, rabies prophylaxis, dental surgery, sterility in bulls, redwater (piroplasmosis), equine hæmoglobinuria, etc. The fifth Congress will be held at Copenhagen in 1938 under the presidency of Professor Hansen. British veterinarians, we are sure, will be interested to read the reports—or reviews of the reports—of this Congress when they become available, for they will contain the practical experience and views of colleagues working in a group of countries that have acquired outstanding merit for their solid contribution to the advancement of veterinary science, particularly as affecting agriculturists, who are now placed in conditions not unlike those which prevail in our own country.—[All except last sentence, from *Rev. Gén. Méd. Vét.* (1934.) *43*, 50.]

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LONDON QUARANTINE STATION

The recommendations of the conference held on January 9th, 1934, between representatives of the Breed Societies, the Royal Agricultural Society of England and the Ministry in regard to the future arrangements for continuing the London Quarantine Station for exported stock have now been approved by the Government. These recommendations include the transfer of the actual administration of the Station from the Royal Agricultural Society of England to the Ministry as from April 1st, 1934, and certain increases in the fees charged in respect of animals entering the Station.

* * * * *

A farmer was fined £7 and ordered to pay £1 8s. costs at Slough for failing to report possession of a tuberculous cow. It was stated that he bought the cow for £3 for the purpose of slaughter for greyhound meat. Two months afterwards the cow was still alive and being milked.

Abstracts

[A Defective Condition of the Bones of Sheep in Certain Areas. Bosworth, T. J., and Stewart, J. (1933-34.) Third Rep. Director. Inst. Anim. Path. Univ. Camb, 33.]

A dystrophic condition of the bones of sheep is recognised by farmers in various parts of the North of England. It occurs on the poorer hill pastures and is seen mainly in young animals of about four months old and upwards. The condition is associated with general unthriftiness leading to emaciation accompanied by œdema which appears to result from heavy worm infestation together with poor quality of the available herbage. Analysis of a number of samples of the latter has shewn it to be of low mineral content which leads to a diminution in the amount of the mineral constituents of the blood of affected animals. In particular the average level of the blood phosphorus is reduced and the bones are relatively poor in this element. The calcium/phosphorus ratio of the latter is high and that of ash/organic matter low. The appearance of the bones in advanced cases is that of extensive atrophy resulting from malnutrition.

Histological changes such as may be expected to result from an actual phosphorus deficiency, have not been observed, but since material from cases in the earlier stages of the condition has yet to be examined it cannot be assumed that they do not occur. T. J. B.

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[*Sheep Sickness of Permanent Pasture. Roberts, E. J. (1933.) *J. Min. Agric., 40,* 4, 337-343.]

On temporary pastures in the fourth and fifth year, a liveweight increase of 46 and 39 per cent. was noted in sheep as compared with those on good permanent pasture nearby. This higher production is due to the greater stock carrying capacity of the temporary pasture. In autumn the lambs failed to thrive on the permanent pasture. Whether this was due to a change in the protein or mineral constituents of the pasture or to invasion with parasitic worms remains undetermined. R. T. L.

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[*Parasitological Field Trials with Sheep. Results at "Frodsley," Tasmania, and "Meteor Downs." Queensland. Ross, I. C., and Graham, N. P. H. (1933.) *J. Council Scientific and Indust. Res., 6,* 3, 191-204.]

The results of further field trials on sheep fail to bear out the indications of trials reported by Ross and Graham for 1931 that sodium arsenate and copper sulphate administered in licks had lessened infestation with *Chabertia ovina* and *Œsophagostomum venulosum*. They confirmed the futility of adding medicinal supplements to licks and to drinking water for controlling parasitic infestations under Australian field conditions. R. T. L.

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[*A Preliminary Survey of the Distribution of the Hookworm of Sheep in New South Wales. Kauzal, G., and Graham, N. P. H. (1933.) *J. Council Scientific and Indust. Res., 6,* 3, 189-190.]

From a preliminary survey Kauzal and Graham conclude that *Monodontus trigonocephalus* is well established in sheep in Australia, in the Upper Hunter and Singleton Pastures Protection Districts, but that practically all infections are on the eastern side of the Great Dividing Range. R. T. L.

* * * * *

[The Prevalence of Foot-and-Mouth Disease in Germany in 1933. (Trans. title.) Schmaltz. (1934.) *Berlin. tierärztl. Wschr., 50,* 72-73.]

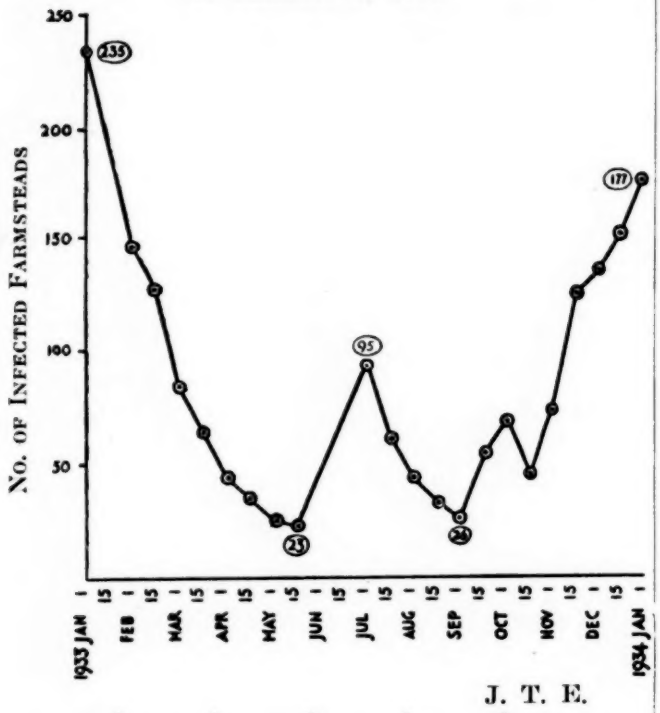
Professor Schmaltz's short annual review of the German official returns gives a valuable insight into the state of foot-and-mouth disease generally on the Continent of Europe—its prevalence, intensity of spread, and periodic fluctuations—which state of affairs has been taken from past experience to reflect a proportionate menace to this country from visitations of the disease. The year 1929 represented a period of very low prevalence of foot-and-mouth disease in Germany. Thereafter, from the beginning of 1930, the disease steadily increased in spread until by October it had reached its maximum, with 6,000 infected farmsteads. It then experienced a rapid drop, falling during the spring of 1931 to below 2,000 infected places; later, however, from the beginning of September onwards it mounted irresistibly in prevalence until the number of infected places exceeded 4,000 (actually, 4,160) in December. The year 1932 thus commenced with foot-and-mouth disease persisting, in a somewhat serious degree (4,062 infected places on January 1st). With the progress of the year, the disease suffered a rapid decline in prevalence until May 1st; thereafter it increased in spread, to 2,074 infected places by September 1st. Subsequently, the number of diseased farmsteads sank down to a well-sustained low level, dropping to 315 by December 15th.

During the whole of the year 1933, foot-and-mouth disease did not fall down at any time to a stage of complete extinction, but with slight fluctuations it remained at an exceptionally low level of prevalence, tending, however, to rise somewhat towards the end of the year. The number of infected places, indeed, dropped to the very low level of 23 only, by May 15th. A temporary sharp rise later was explained by the

*(*Contributed by the Imperial Bureau of Agricultural Parasitology.*)

extension of an outbreak which had occurred in Baden, which itself accounted for 79 infected places out of a total of 95 returned for the whole of Germany on July 1st. The fluctuations in prevalence during the year are depicted in the chart below.

Prevalence of Foot-and-Mouth Disease in Germany in 1933



J. T. E.

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[The Differentiation of the Virus of Vesicular Stomatitis from the Virus of Foot-and-Mouth Disease by Filtration. Galloway, I. A., and Elford, W. J. *Brit. Jour. Exp. Path.*, 1933, xiv, 400.]

In this paper, though the authors touch on several of the differences between the viruses of vesicular stomatitis and foot-and-mouth disease, they concentrate largely on the work they have done on determining the relative particle sizes of the two viruses. They show that the virus of vesicular stomatitis has a particle size of 70-100$m\mu$ and that this applies to both strains of the virus (" Indiana " and " New Jersey ") whereas the particle size of the foot-and-mouth virus was found by them to be 8-12$m\mu$. They conclude that this is " direct evidence of the distinct individuality of the two diseases."

In the paper is also given a summary in tabular form of the contrasts in characteristics of the two viruses, one of the most interesting features being the behaviour of the viruses when attempts were made to cultivate them in the chorio-allantoic membrane of the egg by a modification of the technique employed by Woodruff and Goodpasture. This work was done in collaboration with Dr. F. M. Burnet, and resulted in showing that the virus of vesicular stomatitis will survive and propagate in such tissue culture whereas the foot-and-mouth disease virus did not survive. The authors promise us full details of these interesting experiments later T. D.

[It has been pointed out to us that the correct symbol in describing the particle size of a virus is $m\mu$ which means 0·000001 millimetre. In *The Veterinary Record*, *14*, 1, 20, the term μ was used. This is wrong; the term μ means one micron or one thousandth of a millimetre, whereas the term $m\mu$ means one-thousandth of a micron (μ), *i.e.*, one millionth of a millimetre. At one time the term " $\mu\mu$ " was used; this has now been replaced by the term " $m\mu$."—Ed., *V.R.*]

* * * * *

[Cancer of the Tongue in a Cow. (Trans title.) Laszló, Franz. (1934.) *Deuts. tierärztl. Wschr.*, *42*, 70-72.]

Cancer of the tongue is of very rare occurrence in animals, although in the human subject—and in men more frequently than in women—this is one of the common localisations of a particularly malignant form of the disease. In fact, among animals, Dr. László (who is Director of the State Abattoir at Györ, Hungary) could only find reference in the literature to four recorded cases, namely (1) a case of horny, ulcerous cancer on the dorsum of the tongue of a cow, recorded by Pflug; (2) a case of scirrhous, ulcerous carcinoma at the root of the tongue in a horse, recorded by Joest; (3) a primary, horny cancer at the root of the tongue likewise in a horse, recorded by Fölger; and (4) a case of rodent ulcer on the lower surface of the tongue of an old cat, recorded by McFadyean.

The lesion described by Dr. László was observed on the dorsum of the tongue in a ten-year-old cow, appearing as a brown, cauliflower-like excrescence about the size of a fist, which extended downwards on the left side of the tongue to the floor of the mouth, and was surrounded by a raised zone that formed a boundary between the tumour and the tissues of the healthy tongue. Between the wart-like processes seen on the surface of the growth there was an accumulation of sticky, stinking material together with food débris. The cut surface of the tumour presented towards its upper part a somewhat moist layer of tissue that was streaked with brown, soft, and undergoing necrotic changes, while towards its lower part the tissue was grey and embedded in the subjacent musculature of the tongue.

On histological examination, the mucous membrane covering the raised zone surrounding the central tumour was found to be distinctly thickened and to disclose spreading rootlet and runner-like processes in its depth; the superficial layers of epithelium shewed some areas

of hyperkeratosis and some of parakeratosis; the deeper portions presented a picture of inflammatory, rapidly proliferating tissue causing disruption of the underlying bundles of muscle fibres, which had lost for the most part their striation. The inflamed areas comprised largely polynuclear leucocytes, but in some places eosinophile cells were also numerous. The central growth showed a somewhat different appearance. The superficial layer of epithelium was largely necrotic and enclosed innumerable degeneration cysts of varying size. The cysts were encapsuled within boundary walls of horny epithelium; sometimes, however, these walls were only partially keratinised. The cyst contents were composed of a serous fluid in which were found detached epithelial cells, pus cells, and, in some places, red blood corpuscles. Some of the smallest cysts contained red blood cells only. These cysts evidently arose from necrosis and liquefaction of epithelial cells caused by bacterial action. The deeper portions were here also comprised of inflammatory, rapidly proliferating tissue; eosinophile cells were observed again in this situation, but for the most part it was occupied by cross-shaped oval, or irregularly-shaped islands of epithelial cells. In one part, horny epithelial cells were seen disposed in concentric layers. From the margins of the islands there was luxuriant sprouting of epithelial cells, and in the smaller islets these cells were seen in active division. The growth was, therefore, diagnosed as a squamous-celled carcinoma, which is the type found preponderatingly in human tongue cancer.

It is recalled that small ulcers may be found often at the back of the tongue in cattle. These are caused by food materials and may become the starting points of suppurative lesions or actinomycosis. The author concludes that the disease recorded by him very probably originated in such an ulcer, which, subjected later to chronic irritation, finally led to epithelial proliferation and the cancer growth.

J. T. E.

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*[**A New Tænicide for Dogs and Cats.** (Trans. title.) Stetter, R. (1933.) *Münch. Tier. Woch.*, *84*, 33, 385-389.]

Stetter has tested "Nemural," a pyridin derivative containing arsenic and similar in its effects to arecolin, against tapeworms in dogs and cats. The tablets are dissolved in water and can be given a few hours after a light meal. The drug needs no laxative, is not toxic, and is effective within five hours. Of 70 dogs and six cats, 97 per cent. passed tapeworms, mostly *Dipylidium caninum*

B. G. P.

**Contributed by the Imperial Bureau of Agricultural Parasitology.*

[**The Relationship of *BACILLUS OVITOXICUS* (Bennetts) to the *CLOSTRIDIUM WELCHII* Group.** Wilsdon, A. J. (1932-33.) Third Rep. Direct. Inst. Anim. Path. Univ. Cambridge, 46-51. 5 tables. (4 refs.)]

From an examination of toxins prepared from types of *C. welchii*, it appeared that "*B. ovitoxicus*" toxin resembled toxin prepared from *C. welchii*, type D. Both these toxins are hæmolytic, stable at room temperature and thermostabile. In each case, on intravenous injection into mice, the onset of death is slow and the minimal lethal doses are very similar. Further, both toxins reach their maximum concentration after about three days' incubation. Cross-neutralisation tests confirmed the similarity between these two toxins. Anti-toxins were prepared with toxins from "*B. ovitoxicus*" and *C. welchii* types A, B, C, and D. It was found that "*B. ovitoxicus*" anti-toxin neutralises its homologous toxin and toxins from *C. welchii* types A and D, but not types B and C. *C. welchii* type D anti-toxin neutralises its own toxin and toxin from *C. welchii* type A, but not toxins from *C. welchii* types B and C; moreover, it neutralises toxin from "*B. ovitoxicus*." From the results obtained the author concludes that *C. welchii* type D and "*B. ovitoxicus*" are indistinguishable from each other.

J. A. N.

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Annotation

Failure of a Recent Project to Constitute a Bureau of Animal Industry in France : Effects of this Failure upon the Veterinary Profession.

The year 1933 will bring back only sad memories to the minds of French veterinarians, says the *Revue Générale de Médecine Vétérinaire* (1934, *43*, 47), for it has left the profession in a state of profound confusion. As could have been very easily predicted, the Bill introduced into the Senate by Dr. Armbruster, senator for the Aube Department, went down before the first obstacle it had to confront. This Bill proposed to create a Bureau of Animal Industry (*Direction de l'Elevage*) within the Ministry of Agriculture. It was sent for scrutiny to the Standing Agriculture Committee of the Senate, where it encountered the determined opposition of the majority of the members and of the Ministry of Agriculture. A new draft has been prepared to limit the operations of the Bill to re-establishing the independence of the State veterinary services and defining accurately their powers and privileges. For some curious reason, veterinary education (which is undertaken by the State in France) does not find a place in its provisions, though it is expressly laid down that an inspector-general of veterinary sanitary services is to be placed at the head of the services. This proposed reform, the *Revue* contends, is fraught with the gravest objections.

The failure of the above Bill to obtain a favourable hearing would not have been so disastrous to the interests of the veterinary profession if the Council of its Association had not taken upon itself—despite advice to the contrary—to indulge in a manifestation in its favour that was, to say the least, untimely. Since then, the Council has been reconstituted, and the new Council is held to have shown already by its actions that it contains more stable elements, imbued with a sense of goodwill and discrimination. So that, in spite of the facts that the confidence of the profession in France has been rudely shaken and that the disturbing financial situation is also full of menace, there are still many reasons for holding that the situation is by no means desperate. One of the chief reasons is said to reside in the new French law of July 7th, 1933, which provides conjointly for three objectives, namely: (1) the prophylaxis of bovine tuberculosis; (2) the soundness of meat; (3) measures of common application to the whole law. The meaning of this somewhat unusual combination becomes more evident in the light of the statements made by the Government reporter when he introduced the legislation into the Senate (on June 18th, 1929); the Government, he declared, was moved by the highest motives in uniting these subjects, for they were intimately related and it was in the application of the second of them (that of meat inspection) that they were to find the means of financing the application of the first (that of bovine tuberculosis eradication).

It is hoped to publish in this journal shortly an annotation upon this legislation. The *Revue* says that the full import of the new law will only be appreciated as departmental orders are published outlining the action to be taken upon its several provisions. Nevertheless, it is believed that the law represents an enterprise which will demand the active collaboration of almost every veterinary practitioner in the country. Indeed, it is claimed that it is an enterprise without precedent in France, and that to promote it to a successful issue perhaps the most essential condition is the organisation of the veterinarians of the country into a solid professional association. J. T. E.

THE ACQUISITION OF FARMS FOR EDUCATIONAL PURPOSES BY THE GERMAN VETERINARY COLLEGES

In a recent number of the *Deutsche tierärztliche Wochenschrift* (November 25th, 1933), Professor Götze recounts the transactions which led to the acquisition of the Adendorf Estate by the Veterinary High School at Hanover. In 1885, Professor Oppermann had explained the necessity of a farm to the school for purposes of education and research. He also pointed out that the Veterinary High School at Berlin had then just acquired the former remount depôt at Klein-Ziethen to be converted into a veterinary research centre. The Prussian Ministry of Agriculture and Lands thus consented to purchase the Adendorf property, which is situated a few miles outside Hanover, and rent it to the school. Now, from April 1st, 1933, the property has been allocated to the school for its entire use, and veterinary students undergo there regular tuition in the subjects of animal husbandry and agriculture.—[*Rev. Gén. Méd. Vét.* (1934.) *43*, 49.]

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ANOTHER COLLEGIATE ITEM

We have to turn to the Irish edition of *The Daily Express* for the news that Dublin Veterinary College beat the London College by 12 pts. to 6 in Dublin on February 12th, for the "Wooldridge" Challenge Cup. In our day this annual trip was a great event and the subject of a post-haste pæan of triumph from the Secretary of the winning club to the *Record* office, where it was accepted gladly—for do not the *alumni* delight in the perpetuation, by proxy, of these sporting hostilities? Moreover, as we have indicated previously, this readiness of acceptance will be extended to news of many other departments of College activities when they are forthcoming.

* * * * *

It is important that the campaign started a year or two ago for the destruction of the grey squirrel should not be relaxed. This campaign, curiously enough, synchronised with a widespread epidemic which killed large numbers of the animals, so that some few districts are now almost depleted of them. If, however, the measures against them this year are relaxed, the squirrels will in all probability spread rapidly again and become as big a pest as ever.

Review

[**"Recent Advances in Endocrinology,"** by A. T. Cameron. J. and A. Churchill, London. 15s.]

The apparently dual control of the activity of many of the life processes is a matter which has been baffling investigators ever since the original discovery of "hormones" or "chemical messengers," by Bayliss and Starling, in 1902. Why should it be necessary for animals, which appear to have a very efficient nervous mechanism regulating their various activities, to have need of a second system of control built up of a variety of chemical substances, each produced at one site in the body whilst acting at another? This question has not yet been answered, but meanwhile our knowledge of these chemical principles grows daily. The complexity of the subject also increases daily, for not only are more and more endocrine secretions being discovered but it is becoming increasingly patent that the activities of many of the principles are intimately linked one with the other. One need only refer to the pituitary, certain secretions of which exert their activity in conjunction with those of the thyroid or with those of the reproductive organs. As a result of this complexity and because the ultimate simplification resultant upon complete knowledge has not yet been reached, it becomes almost impossible for any but the expert endocrinologist to follow and to appraise the contemporary position of this branch of science. Nevertheless, much of this knowledge appears of direct clinical significance to man and also to the lower animals, although at present there is need of much more observation and research especially with the latter subjects. It is because of this want that we welcome the present monograph.

Professor Cameron has, within the compass of 360 pages, ably reviewed most of our knowledge of endocrinology. He has carefully sifted the original papers and frequently given us a critical opinion of work still subject to dispute. Such treatment enhances the value of the book to the more general reader. The main chapters of the book deal with (*a*) the thyroid gland and iodine metabolism; (*b*) the parathyroid glands; (*c*) the islets of Langerhans and insulin; (*d*) the adrenal glands; (*e*) the pituitary gland, and (*f*) the endocrine secretions of the organs concerned with reproduction. A further chapter is devoted to some actual and presumptive endocrine principles and the book finishes with a valuable chapter on endocrine inter-relationships. The book should have a strong appeal to veterinarians both because of its intrinsic interest and because of its potential value to the clinician confronted by the difficult task of diagnosing endocrine disturbance in his patients. The book is singularly free from misprints and no gross errors in the text were discovered. Altogether the volume forms a fitting addition to the excellent "Recent Advances" series.

N.V.M.A. Divisional Reports

YORKSHIRE VETERINARY MEDICAL ASSOCIATION*

PRESIDENT'S ADDRESS AT LEEDS

A general meeting was held at the Hotel Metropole, Leeds, on Friday, January 26th, 1934. The President, Mr. A. H. Watson, occupied the chair, and the following members were present: Colonel J. A. Dixon, Messrs. W. R. McKinna, J. W. Procter, W. Halstead, G. Vernon Tyerman, E. G. Duncan, E. F. Hardwick, E. F. McCleery, W. A. Campbell, Colonel H. G. Bowes, Messrs. J. Clarkson, W. A. Milligan and S. Sharp, Hon. Secretary. Apologies for absence were received from Messrs. J. Abson, G. Whitehead, D. S. Rabagliati and W. T. McGregor.

Correspondence.—A letter was read from Mr. G. H. Locke, thanking the members for his election as an Honorary Associate of the Division.

Arising out of a letter from the General Secretary of the N.V.M.A., the Secretary was instructed to reply that in the territory of the Division there is no instance of any complaint having been made regarding the Veterinary Advisory Scheme of the Ministry of Agriculture.

Colonel J. A. Dixon was appointed as delegate of the Division to the Annual Congress of the Royal Sanitary Institute at Bristol, and it was agreed that a delegate's fee be paid.

It was decided that a provisional grant of £5 5s. be made to the funds of the British National Committee of the International Congress to be held in New York.

Membership.—Mr. D. A. McPhee and Mr. G. Vernon Tyerman were elected members, on the proposition of Colonel Bowes, seconded by Colonel J. A. Dixon.

Mr. G. Clark, Ministry of Agriculture, Bradford, was nominated for membership by the President.

Presidential Address

The President now gave his Address from the Chair, which was as follows:—

I must first of all thank you for the honour you have conferred upon me by electing me as President of the Society for the ensuing year.

Since I first became a member of this Society, 31 years ago, a great many changes have taken place—many well-known and revered names in the Veterinary Profession have passed along, but I am pleased to say that there are still a

*Received for publication January 31st.

few left amongst us whom I can thank for their advice and tuition when I was a student and later a young practitioner.

In those days the Society consisted of private practitioners whose main source of income was from professional attendance upon the equine species; now it is from that devoted to cattle, dogs, etc. The Society now consists of practitioners and veterinary inspectors; and although in some quarters there appears to be a pessimistic view taken that the whole-time official is taking away the living from the practitioner, I do not agree with this. There is plenty of room for both if we all remember that we all belong to the same profession and try to raise its status by working hand in hand without any bickerings.

Both branches very naturally can help each other if either side will not be too independent and not too diffident in approaching the other.

A practitioner can usually assist an official by supplying information as to the character of the persons in his district, which knowledge is always a great help, and the official can return the compliment by recommending veterinary advice and discouraging the use of patent medicine and quackery.

In *The Veterinary Record* of last Saturday, January 20th, I read that the Council of the N.V.M.A. recommend the creation of a State Veterinary Service. If this is to be on the lines of the doctors' panel, I do not think it will be for the benefit of the community. It is only human nature for a man to give his best if he knows that he is earning it; whereas, if he is certain of a fixed sum for what work is done, he has not the incentive to put his best into that work and later becomes careless and somebody suffers.

It is very pleasing to see that more counties and local authorities are appointing veterinary officers for the inspection of cattle, etc., which is a step in the right direction for the control of tuberculosis, but even this can only be looked upon as a temporary public health measure, and some scheme ought to be brought forward for its eradication.

To speak of tuberculosis naturally brings one's thoughts to the intradermal test and the different views in reading the reactions. Too much care cannot be taken when giving certificates for this test, as owners of tuberculin-tested herds, as well as the veterinary surgeon, are able to assess the reactions, unless these are very doubtful.

It has been impressed upon me recently from observations during the course of my practice that indiscriminate testing is being done and that certificates are given which any member of the profession ought to be ashamed to give and which eventually can only bring a valuable test into disrepute.

But what about those two other bugbears of the cattle industry, namely, contagious abortion and Johne's disease? Both these diseases are becoming more commonly met with in practice and although one can help the agriculturist in the case of the former by vaccination, what is to be done about the latter? In my opinion, Johne's disease ought to be scheduled and dealt with on similar lines to tuberculosis.

Then there is mastitis, which, like the poor, is always with us, and although a great deal of research work has been done in connection with this disease we do not seem to be getting much nearer to counteracting it. From observation I am becoming more convinced that the majority of cases of mastitis are due to flies, mosquitoes, etc., injuring the end of the teats.

Reverting to my remarks *re* patent medicine vendors and quackery with which a practitioner has to contend, there are also well-known wholesale drug houses who supply to the laymen vaccines, etc. I suggest that these ought to be boycotted, unless they fall into line with other firms who only supply through the veterinary profession.

With these few remarks, which are somewhat disjointed, and not of the literary standard of those of my predecessor, I now conclude, hoping you will say of the essayist, "Be to his virtues ever kind, and to his faults a little blind."

A vote of thanks to Mr. Watson for his Address was proposed by Colonel Dixon and seconded by Colonel Bowes.

Obituary.—Colonel Bowes referred to the death, which had recently occurred, of Mr. F. Somers, who had for many years been a member of the Division, and the Secretary was instructed to write a letter of sympathy to the bereaved family.

N.V.M.A. Council.—Colonel Dixon and Mr. J. W. Procter, representatives of the Division on the Council of the N.V.M.A., gave an account of the proceedings at the last meeting of that Council.

R.C.V.S. Council.—Consideration was given to the selection of a candidate or candidates to stand for election at the forthcoming election for the R.C.V.S. Council. It was decided to leave the selection of candidates in the hands of the Council of the Division.

Morbid Specimens.—Mr. J. W. Procter showed the following morbid specimens: (1) Large cystic calculus removed by operation from a Spaniel bitch twelve months ago, and several smaller calculi removed *post-mortem* from the bladder and kidneys of the same bitch.

(2) Bladder, with very large prostate glands, from a year-old boar which had died after showing symptoms of uræmia.

(3) A huge ovary, as large as a medium-sized melon, taken *post-mortem* from a West Highland terrier bitch.

(4) Uterus showing pyometra: this exhibit was from a Yorkshire terrier bitch which weighed 6-lbs., and the diseased uterus weighed 1-lb.

The meeting concluded after a general discussion on these interesting specimens.

S. Sharp, *Hon. Secretary.*

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NORTH OF ENGLAND V.M.A.*

OFFICERS ELECTED AT NEWCASTLE-ON-TYNE

A meeting of this Division was held at Armstrong College, Newcastle-on-Tyne, on Saturday, December 2nd, 1933, when the chair was occupied by the President, Mr. H. S. Elphick, and the attendance book was signed by the following: Messrs. W. J. Young, T. R. Jarvie, F. Pickering, L. E. Perkins, T. M. Mitchell, J. W. Rider, W. H. Blackburn, T. Wilkinson, J. H. Taylor, W. L. Stewart, J. J. McDowall, A. Alexander and J. R. Rider, Hon. Secretary.

Apologies for absence were received from a number of members.

The minutes of the preceding meeting, having been published in *The Veterinary Record,* were taken as read and confirmed.

Council Report.—The Council report, dealing with a number of domestic matters, was received and adopted.

Election of New Members.—Messrs. A. J. Alexander, Gosforth, Newcastle-on-Tyne, and W. S. Gray, Sunderland, were unanimously elected members of the Association.

Election of Officers

The following officers were elected for the year 1934:—

President.—Mr. A. C. Forbes.

Senior Vice-President.—Mr. H. S. Elphick.

Junior Vice-President.—Mr. F. Pickering.

Hon. Auditors.—Messrs. T. M. Mitchell and W. L. Stewart.

Hon. Secretary and Treasurer.—Mr. J. R. Rider.

Members of Council.—Messrs. J. J. McDowall and E. R. Callender.

Reports of Delegates to Outside Bodies

Newcastle R.S.P.C.A. Dispensary.

Mr. H. S. Elphick presented a report on the work done during the year, which showed that the good work accomplished in previous years had been steadily increased. The accommodation was being severely taxed, and it was hoped that measures could be taken to find more suitable premises.

Sunderland R.S.P.C.A. Dispensary.

Mr. T. M. Mitchell, reporting on the first complete year's work under the Centralised system, said that although the number of attendances was much fewer than in Newcastle, it was none the less gratifying to state that they totalled 942 for the year. The contents of the collecting box amounted to £22 5s. 6d., and this sum, together with specific donations, was expected to cover the overhead charges. He believed that the dispensary was fulfilling a very useful purpose in directing the attention of animal owners to the value of skilled treatment for their sick or injured stock.

Mr. McDowall, supporting Mr. Mitchell's statement, observed that the Centralised plan had produced far greater numbers than the system of vouchers which had been operative in the past. His experience of the Decentralised scheme was that only about 30 or 40 cases were presented during the year.

Alan Duke of Northumberland Memorial Fund Management Committee.—In the absence of Mr. C. Elphick, the Secretary presented his report. Two meetings of the committee had been held during the year, both of which had been attended by the representatives of the Association. The work of the committee was principally concerned with matters of finance and organisation to facilitate the actual research. Mr. Stewart gave brief resumés at each meeting of the progress of his work. It was suggested that it was of interest and importance to the members of the Association to receive details of the work accomplished, in a form suitable for presentation to a professional meeting.

Mr. W. L. Stewart thereupon gave an account of the work on sheep diseases which had been done during the year.

National Veterinary Medical Association.—The Hon. Secretary gave a brief account of the many matters which had received the attention of the "National" during the year.

Discussion of Clinical Cases

Rupture of the Uterus in the Cow.—Mr. Forbes described a case which had come under his observation in a half-bred Shorthorn cow. The animal was lying groaning, but there was an absence of labour pains. Examination showed the *os uteri* to be dilated, but an extended search was necessary before a foetal foot was found. This calf was delivered with little difficulty, but there was no alteration in the condition of the cow. The afterbirth was removed on the second day, and death followed on the third day. *Post-mortem* examination showed a rupture of the body of the uterus, with rupture of the broad ligament. The left uterine horn was everted through the rupture in the body of the uterus, and a second emphysematous calf was found in the abdominal cavity.

Mr. Mitchell believed that rupture of the body of the uterus was comparatively common in the cow. Two cases had come under his

*Received for publication February 7th.

observation within a week. In the first case there had been prolapse of the small intestine through the ruptured uterus and the vagina. The second case occurred in a cow three weeks before time. Labour pains were present and the membranes were protruding, but the *os* would not admit the hand. He advised delay. The afterbirth was discharged and labour pains ceased. On the following day the *os* was fully dilated and the rupture was found, together with the presence of the calf in the abdominal cavity. By this time contraction of the uterus had occurred.

Mr. Pickering observed that it was possible for the calf to become emphysematous in 24 hours after death.

The Dosage of Oleum Chenopodii for Young Pigs.—Mr. Jackson Young reported an experience which had come under his notice. Eighty-seven ten-weeks-old pigs had been dosed by the owner with half-an-ounce each of ol. chenopodii. Only one death had occurred, and this animal was found to be full of dead *Ascaris* worms.

J. R. Rider, *Hon. Secretary.*

CHILLED BEEF FROM NEW ZEALAND

A consignment of chilled beef, which was pitched in Smithfield and in a number of provincial markets on Thursday of last week, was found to have arrived in this country in such a commercially satisfactory condition that it may prove to be a turning-point in the history of New Zealand beef shipments. Small regular shipments are to follow, and these may develop until they eventually displace altogether the less profitable frozen beef shipments from the Dominion.

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CANADA'S LIVESTOCK POPULATION

"The livestock population returns for Canada in 1933 are similar to those of this country in two respects," says *The North British Agriculturist.* "In the case of horses and also of sheep the numbers are down compared with 1932. Whereas the return of horses in 1932 was 3,093,626, the number in 1933 was 2,984,095. In this country there was an over all decrease in horses of 1,000, the decrease in horses for agricultural purposes showing a decrease of 1,400, the total being the smallest on record. Coming to sheep, we find that in Canada there was last year a decrease of 258,700, while in this country the decrease was 171,200. In both countries the cattle population was up—in Canada by 364,400 and in Britain by 45,600 head. In the case of pigs, while Canada shows a decrease of no fewer than 838,400, there was a small increase in this country. It was only 700, but it was on the right side. It is noted that in Canada horses showed decreases in all provinces except British Columbia. Cattle, on the other hand, increased in all provinces except Quebec and Ontario where decreases were indicated. Sheep showed decreased in all provinces except in Manitoba and Saskatchewan where numbers were increased. Pigs decreased in all provinces, while there were also decreases in poultry for all provinces except Ontario. The total poultry decrease was 5,243,800."

IN PARLIAMENT

Government's Milk Policy

"Necessity for Public Confidence in Purity of Supply"

Mr. Walter Elliot, Minister for Agriculture, in the House of Commons on Thursday of last week, made an announcement with regard to milk policy which is of great importance alike to the community, to agriculture, and to the medical and veterinary professions. In the course of his remarks the Minister said:—

The Government has been giving close consideration to the supply of milk and milk products in this country. As the House will be aware, there is a volume of milk surplus to present liquid requirements which is estimated to be little short of 20 per cent. of the total volume of milk sold under contract this winter, and is likely to be about 40 per cent. of the larger volume of contract supplies available in the spring and summer. This surplus milk has to find a market in manufactured form, chiefly as butter and cheese. Prices of butter and cheese are at very low levels, owing to exceptionally heavy imports and present market conditions generally.

There is thus a grave danger that the price structure of the whole milk producing industry in this country will be seriously undermined, particularly when the spring and summer flush of milk comes on to the market. An expansion of the liquid milk consumption of the country would not only be of the greatest benefit from the public health point of view, but would alleviate in the most satisfactory way the difficulty of 'surplus milk.' If this increase in consumption is to be obtained, it must be based on public confidence as to the purity of the supply.

The Government accordingly proposes: (1) That for the two years beginning April 1st, 1934, the Milk Marketing Boards shall be guaranteed by the Government by means of Exchequer advances minimum prices of 5d. a gallon in summer (April-September) and 6d. a gallon in winter, in respect of milk manufactured in factories in Great Britain. For milk manufactured into cheese on farms, for which the Boards will have to assume responsibility, the same advances a gallon will be made. The advances from the Exchequer are estimated to amount to about from £1,500,000 to £1,750,000 in the first year.

(2) For the purpose of launching a campaign for securing a purer milk supply, the Government will provide from public funds a sum not exceeding £750,000, spread over the next four years. It will be the responsibility of the Boards to continue the campaign without further assistance as soon as they are in a position to do so.

(3) The Government will be prepared to contribute from the Exchequer on a pound for pound

basis to a milk publicity fund for a period of two years. The Government contribution will be limited to £500,000 in either year, according to the amount contributed by the Milk Marketing Boards. The grant will be contingent on the submission of an approved programme containing, *inter alia*, provision for the supply of milk to schools at reduced rates.

The requisite legislation will be introduced at an early date, and, in view of the widespread interest which is being taken in the subject, the Government hopes it will be facilitated by all parties in this House.

Replying, in the course of the ensuing debate, to a member (Mr. Buchanan) who asked if the inference to be drawn from the Minister's statement was that this country was not at present getting a pure milk supply, Mr. Elliot said that he thought it was common knowledge that the purity of the milk supplies in this country was not as great as they would like to see it and the desirability of ensuring a purer milk supply was a responsibility not of one section of the community only, but of the community as a whole. (Cheers.)

[A White Paper, circulated later, contains the details of the proposed arrangements for repayable advances.]

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Diseases of Fish Bill

In the House of Lords on Wednesday, February 21st, the Diseases of Fish Bill was read a Second time, Earl de la Warr moving. [The provisions of this Bill, which are based on the second interim report of the Royal Commission on Furunculosis, will be dealt with in our next issue, which will also contain a review of the report.—Ed., *V.R.*]

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Exportation of Horses Bill

This Bill "to amend the law with respect to the exportation of horses, and for purposes connected therewith," was presented by Mr. Henderson Stewart to the House of Commons on Tuesday, February 20th. It was read a Second time on February 23rd.

The object of the Bill is to stop the existing export of live horses from this country for purposes of slaughter abroad.

Clause 1 extends the present regulations so as to prohibit the export of horses, with certain exceptions, over eight years of age and of less value than £25; and empowers veterinary inspectors at the ports to slaughter any horse rejected as unfit to work without suffering.

The exceptions, set out in Clause 2, are "aged" horses for genuine purposes of racing, breeding, showing, and the like.

The Bill involves no interference with the export or re-export of young and valuable horses.

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Osteopathy: A Regulating Bill

In the House of Commons on February 21st, Mr. Boothby asked leave to introduce a Bill to regulate the practice of osteopathy and to prescribe the qualifications of osteopathic practitioners. He said that the object of the measure was to set up a statutory board with the necessary powers to compile a register of qualified osteopaths, with a prescribed standard of professional conduct. The Bill would give an osteopath the right to employ a qualified anæsthetist without his falling under the ban of the General Medical Council.

Osteopaths did not seek inclusion in the medical profession, but for 30 years and more osteopathy had been practised in this country and had to its credit a large number of striking successes. Failures had been due to the "quacks" who were practising osteopathy, and the purpose of the Bill was to eliminate these "quacks." A leading article in *The Times*, following a long correspondence, showed that the way was open to the practitioners of osteopathy to set up their own organisation and rules of conduct. That was what the Bill set out to do.

Leave having been granted, the Bill was brought in.

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The following questions and answer were recorded in the House of Commons recently:—

Greyhound Racing

Sir P. Dawson asked the Home Secretary when he proposed to introduce a Bill to deal with the tote and greyhound racing.

Sir J. Gilmour: I regret that I am not in a position to add anything to the previous replies given by me on this subject, which were to the effect that I hope to introduce a Bill at an early date. I cannot anticipate the contents of the Bill in any way.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

March 5th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

March 9th.—Annual Dinner-Dance of the Yorkshire Division, N.V.M.A., at Leeds.

March 17th.—Annual General Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

April 1st.—Annual Fees payable to R.C.V.S.

April 4th.—R.C.V.S. Committee Meetings.

April 5th.—R.C.V.S. Committee Meetings.
7 p.m.—**Annual Dinner** at Mayfair Hotel, Berkeley Square.

April 6th.—R.C.V.S. Committee and **Council** Meetings.

May 10th.—Last day for nominations, R.C.V.S. Council Election.

May 24th.—Voting papers issued, R.C.V.S. Council Election.

May 31st.—R.C.V.S. Council Election, voting papers to be returned.

June 7th.—**R.C.V.S. Annual General Meeting.**

July 30th-Aug. 3rd, 1934.—National Veterinary Medical Association Congress, Edinburgh.

Aug. 13th-18th, 1934.—Twelfth International Veterinary Congress, New York.

R.C.V.S. COUNCIL ELECTION

Two further nominations for election to the Council of the R.C.V.S. have been received, namely, Mr. Alfred MacKenzie, F.R.C.V.S., of Market Drayton, who is proposed by Mr. Mark Tailby and Mr. H. W. Dawes; and Mr. J. W. Hall Masheter, M.R.C.V.S., of Newnham, Glos., proposed by Mr. W. D. Rees and Mr. W. K. Townson. This makes 13 nominations for eight vacancies.

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R.C.V.S. ANNUAL DINNER

Preliminary notice is given of the Annual Dinner of the R.C.V.S., which is to be held at the Mayfair Hotel, Berkeley Street, London, W., on Thursday evening, April 5th, at 7 p.m. for 7.30. Price of tickets 12s. 6d., including waiters' gratuities. Among the guests expected will be the Vice-Chancellor of the University of Liverpool, the Permanent Secretary of the Ministry of Agriculture, Lord Leverhulme, Lord Melchett, Sir Merrik Burrell, Bart., Sir William Phené Neal, Bart., Sir Rollo Graham Campbell, Professor William Bulloch, Dr. Carnwath, Dr. Wenyon and others. The President of the College, Professor S. H. Gaiger, will preside, and we hope the dinner will be largely attended. Mr. Webster Booth, the operatic tenor, and Mr. Frank B. Powell, baritone, will provide the musical entertainment.

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PERSONAL

Hannah Dairy Research Institute Appointment

The Council of the Hannah Dairy Research Institute had under consideration at its last meeting the appointment of a successor to Dr. L. Jordan, M.R.C.V.S., the institute's veterinary pathologist, consequent on his appointment as county veterinary officer for West Sussex. Mr. S. J. Edwards, B.Sc., M.R.C.V.S., at present senior assistant at the Research Institute in Animal Pathology of the Royal Veterinary College, London, was unanimously appointed to the vacancy. Mr. Edwards has specialised in the study of mastitis, and has published, in collaboration with Dr. F. C. Minett and Dr. A. W. Stableforth, a number of important papers on this disease. He has also had considerable experience in the eradication of contagious abortion by segregation methods, a subject which is already under investigation at the institute.

Sir Robert Rait, Principal of Glasgow University, was elected Chairman of the Council in succession to the late Sir Donald MacAlister.

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Presentation.—At a meeting of the Dumfries and Galloway Division of the National Veterinary Medical Association in the Crown and Mitre Hotel, Carlisle, on Tuesday, members of the profession made a presentation to Mr. F. A. Davidson on the occasion of his leaving the district to take up the post of Chief Veterinary Officer for Staffordshire.

The President, Mr. Stinson, Appleby, in presenting a gold watch, appropriately inscribed, paid tribute to the good fellowship that had always existed between Mr. Davidson and the other members of the profession and to the very valuable work that Mr. Davidson had done both as an official of the County Council of Dumfries and as Honorary Secretary to the local branch of the N.V.M.A. In closing, the President, on behalf of himself and fellow members, wished Mr. Davidson every success and happiness in his new sphere.

Mr. Davidson suitably replied.

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R.C.V.S. OBITUARY

Smith, William C. M., Cleve Croft, Kilbroney, Rostrevor, Co. Down. Graduated Glasgow, July 16th, 1884; died February 9th, 1934.

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MINISTER OF AGRICULTURE AND THE GOVERNMENT'S MILK POLICY

"Clean-up of the Herds"

Speaking at Truro on Friday of last week, Mr. Elliot, Minister of Agriculture, said that the Government's milk policy, which he had announced in the House of Commons on the previous day (*vide* our Parliamentary Column), had a threefold purpose: To put a bottom in the market, to clean up the herds, and, on that basis, to expand consumption of liquid milk.

"The second objective of the Government's proposals was to secure purer milk, through a campaign the main object of which would be to increase public confidence in the quality of the milk supply. This took two forms. We had to clean the milk and to clean the cows. He attached more importance really to the latter. When he said clean, he did not mean merely to clean the outside of the cow; we wanted a clean inside to the cow as well. This was good for the producer as well as for the consumer. A cow with a weak spot in her was like a tyre with a patch on it. Sooner or later the patch blew out in the tyre, and sooner or later the weak spot broke down in the cow.

"Asking what was the best way to achieve this," continues *The Times* report, "Mr. Elliot said they were attacking the problem forthwith. Preliminary discussions on the scientific and administrative problems involved had already taken place. Personally, he attached the greatest importance to the recommendation of the Grigg Reorganisation Commission of a guaranteed premium for accredited milk. He hoped they would be able to do something along that line. He did not want to have the veterinary surgeon running after the farmer. He wanted to have the farmer running after the veterinary surgeon. He would do that if he saw a chance of a return for the time and money that clean herds inevitably cost.

"This clean-up of the herds was a long overdue reform. A grant of £750,000 from the Treasury would, accordingly, be made available in the course of the next four years for the purpose. The improvement in the quality of the milk supply was sound business from the point of view of the dairy industry, and was a vital service to the community. It was the Government's intention that the milk boards themselves should sustain the new effort as soon as they were in a position to do so."

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SHIRE HORSE SOCIETY'S TROPHY WON OUTRIGHT

For the third year in succession Mr. G. R. C. Foster's Bower Winalot won the supreme stallion championship of the Shire Horse Society, at last week's show at the Royal Agricultural Hall,

Islington. The society's 100 guineas gold challenge cup therefore becomes the property of Mr. Foster. This is the fourteenth of the society's male championship cups to be won outright. In 1930 the trophy was gained for the third time in succession by Mr. J. Morris Blecher's Eaton Premier King. The championship carries with it the King's challenge cup, which is offered for perpetual competition, and the £25 champion cup for the best stallion in the show. Mrs. A. Thomas Loyd, wife of the president of the show, presented the trophies to Mr. Foster.

The contest for the supreme male champion was fought out between Bower Winalot, who appropriately enough had for his sire a horse named Lucky Dog, and an old rival, Mr. E. W. Webb's seven-year-old Kirkland Black Friar, which was the supreme champion in 1931. The former stallion is two years younger than the reserve champion. Both showed well, but the younger animal, with his fine outline and imposing size, was again preferred. Bower Winalot also won the senior male championship, with Kirkland Black Friar as reserve.

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Successes of the Liverpool Stud

On the day following, the arena was filled by commercial horses. The society, by providing special classes for mares and geldings of Shire type regularly employed in haulage work in the streets, does much to encourage the continued use of horses for short-distance transport, and the time set apart for the judging of these classes on the closing day of the show each year brings its reward to the society, the exhibitors, and to the drivers, whose care of the animals is reflected in the appearance of the exhibits.

The entries numbered 41, a decrease of five compared with last year.

The exhibitors included the Liverpool Corporation, and once again this famous stud, which is now under the veterinary supervision of Captain A. W. Noel Pillers, F.R.C.V.S., was to the fore, being represented in the list of awards as follows: Single Heavy Horse of Shire Type, yoked to a vehicle—one of the four £3 premiums (Diplomacy); Pair *ditto*—one of the three £3 premiums (Dark Blue and Eaton); Single *ditto*, restricted to rural and borough councils—1st award (£3 and gold medal) (Demon): further gold medal (Diplomacy); Single Heavy Horse of Shire Type, shown without harness, and certified as regularly worked in any city or town for three or more years—one of the four premiums of £3 each (Demon) and reserve (Diplomacy).

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The Society's Annual Meeting

The Duke of Devonshire was elected President of the Shire Horse Society for the ensuing year at the annual meeting of the society at the Royal Agricultural Hall, Islington, on February 22nd.

Mr. A. Thomas Loyd, the retiring President, moving the adoption of the report of the council, referred to the success of this year's show and said there was a more cheerful feeling in the country generally with regard to the future. In a reference to the forthcoming Royal Show at Ipswich, he drew attention to the efforts the Shire Horse Society were making to encourage an outstanding entry of Shires by providing additional special prizes.

The Duke of Devonshire, who has been elected President of the society for the third time, referred to his life-long interest in Shire horse-breeding, and said that the present show was an encouragement to them to do their utmost on behalf of the breed. Alluding to the great competition that they saw in the turmoil of the streets, he complimented Sir Walter Gilbey on his recent speech, in which he referred to the unjustified campaign for the abolition of the horse from London streets. He was reminded, he added, of an old notice which was affixed to a bridge in Ireland. Adapted to modern times it might read: "Motor-cars, bicycles and omnibuses may enter here, but not a horse." Someone wrote under the old notice: "Whoever wrote this, wrote it well. The same is written on the gates of Hell."

He hoped that the Shire Horse Society would conduct the business without quotas or even a marketing board. Those might be all right for some people, but they did not want them, and during his year of office he would not give any encouragement in that direction.

Sir Walter Gilbey, expressing the society's thanks to Mr. Thomas Loyd for his services as President, described the talk about the total abolition of the horse from the streets as "all moonshine."

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LIGHT HORSE BREEDING: WAR OFFICE GRANT OF £5,000

Lord Digby, President of the Hunters' Improvement and National Light Horse Breeding Society, speaking at a luncheon held on Monday last in connection with the fiftieth show of the society, which has been carried on during the week at the Agricultural Hall, Islington, announced that a grant of £5,000 had been sanctioned by the War Office for light horse breeding for this year. Of this sum £4,500, he said, had been allotted to thoroughbred premium stallions and £500 for premiums for the native pony breeds, including those of the Dales and Fells, Welsh cobs, and Pembroke roadsters. Although the grant was only one-sixth of the sum allotted annually by the Government up to 1931, it was invaluable in enabling the society to continue the vitally important work it had carried on since its foundation in 1885.

This year's show, he said, would be held in a far less depressing atmosphere than last year, when no Government support was forthcoming. Last year the society itself came to the rescue, and with their limited resources were able to keep the light horse breeding scheme alive and at the same time to ensure that the urgent need of financial assistance was impressed on the Government. In November last the Minister of Agriculture notified the society that his Department were unable to renew the grant and advised that application should be made to the War Office. The lack of support from the Ministry of Agriculture was viewed with the utmost concern. The Minister, replying to a question put by Lord Dalkeith in the House of Commons, stated that he had received requests for the reinstatement of the grant from 28 county councils or county council committees and seven other interested bodies. As a result an urgent appeal for financial assistance was made to the Racecourse Betting Control Board, and, with the approval of the Home Secretary, the board made a grant of £2,000 to the society on condition that the whole of this sum should be applied to the award of premiums for thoroughbred stallions in 1934. This, he believed, was the first grant from totalisator funds that had been made.

The War Office grant, together with the Racecourse Betting Control Board grant, had enabled the society to award 63 premiums of £100 for stallions to travel England, Scotland and Wales, and eight super premiums of £25 each. For these premiums there was an entry of over

80 stallions. The cost of administering the light horse breeding scheme was considerable and now entirely fell on the society, so it was hoped that the membership would be increased. As a past-President of the National Pony Society, he welcomed the renewal of a grant for the native pony breeds which had been in danger of extinction since Government assistance was withdrawn. The National Horse Association are to be congratulated on the material assistance they had given to the National Pony Society in pressing for that grant.

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ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army

Feb. 23rd.—Lieut.-Colonel H. C. Dibden relinquishes his appt. as Comdt. R.A.V. Sch. and Sch. of Farriery (Feb. 14th).

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Promotion Examination Results

The results are announced of the examination (in written subjects) of officers with a view to promotion in the Regular Army and Indian Army, which was held in India and Burma in October last. The successful candidates include the following officers of the R.A.V.C.: Majors G. Barnett, M.C., and H. Bone, M.C., Captains J. S. Kingston and A. P. MacDonald.

PROFESSIONALLY-STAFFED DISPENSARY FOR PRESTON

The Lancashire Daily Post announces that three local veterinary surgeons are giving their services to the newly-established dispensary for the free treatment of the sick animals of poor persons at India Mill, Newhall Lane, Preston, which was opened by Mr. A. C. Moreing, M.P., on the afternoon of Friday, February 23rd.

The dispensary consists of a surgery, waiting-room and store room, and it is hoped in time to extend and have kennels and stables. There have been numerous donations of furniture and other articles to help the local branch of the R.S.P.C.A. in this enterprise, they having spent practically all their available funds in carrying it through.

The dispensary is the only one of its kind in this part of Lancashire. The nearest is a similar dispensary of the R.S.P.C.A. at Liverpool.

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INTER-PROFESSIONAL RELATIONSHIPS IN GERMANY

In accord with the principles of National-Socialism the relations between the professions must now be controlled by leaders nominated by each profession. Hence, recently, the problem of regulating the sale of sera and vaccines was examined by Dr. Weber, leader of the veterinary profession, and Dr. Schmierer, of Stuttgart, leader of the pharmaceutical profession. The outcome of their discussions has been that henceforward such products can only be issued to the public upon the express order of a veterinary surgeon.—[*Rev. Gén. Méd. Vét.* (1934.) *43*, 49.]

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Errata.—In the abstract on "Hypocalcæmic Morbid Conditions in Domestic Animals," *Veterinary Record*, *46*, 219-220, in the sentence "The writer advises in such cases chalk added to the ration (10 per cent.) unless much milk is used, when up to 20 per cent. should be used," the percentages should read *1* per cent. and *2* per cent. respectively.

The Editor acknowledges, with thanks, the receipt of the following:—

Reports of meetings of the Dumfries and Galloway, Midland Counties, Mid-West and South Wales, and North of Scotland Divisions, N.V.M.A., and the V.M.A. of Ireland, from Messrs. F. A. Davidson, H. W. Dawes, C. E. Perry, Geo. Howie, and Professor J. J. O'Connor, respective Hon. Secretaries.

Communication from Dr. J. W. Edington (Sheffield).

Diseases of Animals Acts.

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Jan., 1934	32	32	—	—	16	25	56	64	33
Corresponding period in									
1933	23	25	6	782	10	15	35	29	9
1932	24	31	—	—	15	41	21	91	27
1931	21	27	—	—	6	9	20	58	37
Total 1st January to 15th February, 1934	62	62	—	—	48	76	220	238	122
Corresponding period in									
1933	62	73	36	3,497	40	71	115	94	16
1932	62	82	1	67	42	78	77	280	97
1931	67	75	2	255	31	58	100	167	59

Note.—The figures for the current year are approximate only. § Excluding outbreaks in Army Horses.